The use of WebQuests in foreign language training of students of non-linguistic specialties

El uso de WebQuests en la enseñanza de idiomas extranjeros a estudiantes de especialidades no lingüísticas

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ABSTRACT:
The purpose of this study is to establish the advantages of using WebQuests in foreign language training of students of non-linguistic specialties. The methodology is based on the information-constructivist approach in pedagogy. The structure of foreign language competence is presented, which includes linguistic, discursive, strategic, sociocultural, pragmatic and personal components. The results showed that with the help of WebQuests it is possible to activate the extracurricular work with students and control it remotely in a prepared and didactically structured Internet-environment.

Keywords: higher education, foreign language competence, WebQuest (WQ), web-project, learning network

RESUMEN:
El propósito de este estudio fue establecer las ventajas del uso de WebQuests en enseñanza de idiomas extranjeros a estudiantes de especialidades no lingüísticas. La metodología se basa en el enfoque informativo-constructivista en la pedagogía. Se presenta la estructura de la competencia en idiomas extranjeros, que incluye componentes lingüístico, discursivo, estratégico, sociocultural, pragmático y personal. Los resultados mostraron que con el uso de WebQuests es posible activar el trabajo extracurricular con los estudiantes y gestionarlo de forma remota en un entorno de Internet.

Palabras clave: educación superior, competencia en idiomas extranjeros, WebQuest (WQ), proyecto web, red de aprendizaje

1. Introduction
The globalizing world of information networks and technologies determines the increase of transparency, universality, borderlessness, openness and communicativeness of the professional activities of future specialists. This situation significantly bolsters the role of foreign language courses in the development of their communicative competence
In this respect, there is a need for comprehensive intensification of foreign languages training, primarily, by establishing new teaching approaches and bringing the training methods up to date. Transition to the new standards of education today is fulfilled on the basis of a competence approach (from knowledge to competence) (Delors, 1996; Raven, 1984; Oscarson, 1997; Hutmacher, 1997). This approach aims at development of communicative competence within the educational process. In the field of foreign languages teaching the notion of communicative competence is associated with the term "foreign language competence" (Pelz, 1997; Savignon, 2002) and in practice we can observe focusing on the communicative component of the foreign language training.

Meanwhile, it is very difficult to implement this component in full in non-linguistic universities. Traditional classroom activities with the actual minimum number of class hours do not make it possible to provide students with a comprehensive and prolonged communicative process. Besides, intensification of a purely communicative aspect of teaching in such conditions can lead to a lack of content-informational aspect of teaching. Therefrom, the main problem is to organize a continuous didactic process of a foreign language training of non-linguistic university students at discrete, time-limited classes. It is necessary to push the boundaries of didactic space and time and remove the foreign language training process beyond time-limited classes into the sphere of students’ individual work. That will allow organizing and managing their learning activities out of the bounds of the university schedule.

On account of the development of modern ICT based on the use of Internet network resources it is possible to solve this problem (Singhal, 1997; Grant, 2004; Chartrand, 2012). These technologies are used as the basis for various media-education practices which, in turn, are the grounds for the development of media-pedagogy and media-didactics (Worsnop, 1994; Hart, 1998).

The main advantage of these technologies is a remote control of the learning process. At the same time the students are provided with the necessary teaching materials, information and communication technologies and their high personal involvement and self-learning activities are stimulated (Shutenko et al., 2017; Shutenko et al., 2018).

2. Methodology

2.1. Conceptual approach

Our teaching and research work is based on the information-constructivist approach (McGroarty, 1998; Matthews, 1998) that aims on creating information space for language training by modern information and communication technologies based on projective, active and constructive training methods. This approach is introduced as an integral meta-approach that serves as a guide for the implementation of other specific psychological and pedagogical approaches to intensify the language training and ensure the necessary information-didactic space for it. Within the information-constructivist approach foreign language competence (FL-competence) is considered as the ability of an individual to feel familiar both with the foreign information flows and information technologies for interaction in a second language. In the educational environment the didactic potential of the information-constructivist approach is presented in the application of projective and constructive methods of training, which develop students’ skills of solving real educational and professional tasks. Students are involved in group, particularly, project work to find solutions to a certain problem. Teacher's task is to prepare material for training interaction and study assignments, to select the necessary information sources and to realize the instructor’s role, whereas students should specify their goals educating themselves.

According to the information-constructivist approach, a teacher is no longer a person who gives lessons on a particular subject, but a consultant, organizer and coordinator of the problem-oriented, research learning and cognitive activity of students. He creates conditions for students' self-actualization and self-realization, promotes the development of students' personality, provides them with the means of creative self-education and self-realization to fulfill. Nowadays, in the educational process a new role is assigned to a teacher: he is not an arbitrary person who gives lessons, but a consultant, that is, a person who provides students with the necessary information and materials, in order to give them the opportunity to solve the problem within the educational cycle.
The development of modern information technologies can significantly promote the constructivist teaching methods. A new stage of informatization of constructivist teaching methods enabled the elaboration of various high-tech training methods comprising WebQuests (WQ).

### 2.2. Teaching method

In pedagogical science WebQuest is a problem-solving task method with elements of a role-play based on the Internet information resources. WebQuests are a very popular way of using Internet resources to research a variety of topics and if correctly used can trigger the situations that is necessary to develop both written and oral communication. A WebQuest is a search and research activity that makes the learner “to collect information about a subject using the web” (Sharma & Barrett, 2007: 24). During their creative work students do not receive “ready-to-use” knowledge and clichés. They participate in a search activity. A favorable educational quest should consist of a compelling introduction, a clearly formulated task that provokes higher-order thinking, a division of roles that provides several perspectives to a problem and a substantiated use of Internet resources (Segers & Verhoeven, 2009).

In the conditions of contemporary didactic innovations, the blended learning combining different methods of training seems to be effective (Sharma & Barrett, 2007). In this context the WebQuest technology for a foreign language teaching is extremely relevant (Selami, 2016). Based on the project method it integrates program, group, and communicative methods, as well as the problem method, the method of conversation and the Dalton-plan methodology (Dodge, 2001).

Herewith, WQ can involve various topics; problematic tasks may differ in degree of complexity. The WQ general advantages and their role in foreign language learning have been explained in a number of publications (Stoks, 2010; Luzón, 2007).

Among the distinctive features of training with the use of WQ are the following items. Firstly, while studying a certain topic a teacher uses an extensive amount of information from the Internet resources. Secondly, when students are involved in WQ, they can choose the most convenient pace for solving the task, regardless of a form of work. Thirdly, WQ gives an opportunity to search for additional information on the topic. However, the teacher defines the framework and selects the Internet resources depending on different levels of students’ language proficiency.

### 2.3. Procedure and materials

The procedure of web-based quest elaboration consists of several stages.

On the first stage it is necessary to make a short introduction with a clearly described principal roles of participants (for example, “You are a detective trying to figure out the riddle of a mysterious incident”), a script of the quest, a preliminary work plan or a review of the whole quest.

On the second stage a teacher should draw up the task, which should be then presented in a table to be subsequently filled. This table includes a task, an evaluation scale, questions and variants of possible answers and tips. The task table can be used for each student or for the entire group.

On the third stage a teacher provides students with a list of information resources (in digital form – on CDs, video and audio, in paper form, links to the Internet resources, addresses of websites connected with the topic) necessary to complete the task.

On the fourth stage there is a step-by-step description of the phases of the task that contemplates:
2.4. Participants

The students of economic specialties of various universities of Russia took part in our experimental work: Belgorod State Technological University, Murmansk Arctic State University, Belgorod National Research University. The work was carried out for two semesters of 2017-2018 academic year. Our experimental work covered 250 full-time students studying “English language” discipline within the following specialties: world and national economics, public relations, crisis management, state-municipal management, service, tourism, information management, etc.

2.5. Didactic and organizational facets of WebQuests application in foreign language training

Students are required to have the appropriate level of FL-competence to work with authentic Internet resource and other similar tasks in language training. In the course of WQ students can work at an individual pace and revise the educational material at any time.

Depending on the material studied the results of the WQs can be presented in the form of an oral statement, a computer presentation, an essay, a web page and other forms. Even a failed WQ has a great positive pedagogical significance. It is connected with the understanding of mistakes that creates motivation for repeated activity. It causes personal interest in gaining new knowledge.

We have introduced a remarkable modification to the organization process of students' work on WQs. Our decision is related to the use of communication and interactive resources of the virtual social network by organizing and incorporating students and teachers into a single educational social network as a part of the implementation of the WQ-project. Thus, the essence of our didactic method is to create a microsocial teaching network within the framework of the group WQ-project.

It was suggested that by means of this network a teacher can manage the educational activities of students in a remote mode more effectively by linking all the educational participants (teachers and students) into a single information and pedagogical space (Hung & Yuen, 2010; Lomicka & Lord, 2015). Within this network a teacher sends out and fixes personalized role tasks to network participants as members of a single virtual group working on one project (Manca & Ranieri, 2017). He can conduct ongoing monitoring and provide necessary consultation and assistance (Chartrand, 2012). Having created such a network a teacher thereby produces a continuous communicative process with elements of cooperation; he ensures students’ personal involvement in continuous information and language activities in an interactive mode of project preparation followed by its public presentation and evaluation.

Within each group all students formed microgroups and selected the topic of their final work.
Then they made a table with the indication of the group members, the chosen topic and the group’s e-mail address. The table was sent back to the teacher 3 days later. Formulated on the basis of the chosen topics WQs were sent to the personal mail of each group leader with additional information about the date of final presentation. Thus, depending on the necessary time for the formulation of the task the whole preparatory phase can be completed for 5-10 days. The result of the WQ for each group was Microsoft Power Point presentation on the chosen topic.

WQ-projects proposed by the teacher had the following topics: advertising, marketing, company structure, globalization, innovation, trade and employment.

The structure of each WQ-project contained a number of key test questions on a definite topic. Students had to find answers by using the proposed Internet sites. They also could supplement the given teaching materials. All WQ-projects included the evaluation table that was filled up by “judges” – both students and teachers minimizing the subjective factor. Nevertheless, this does not mean that a teacher is put on the same level with students. A teacher has the final say since 40% of 100% of the maximum possible points for the WQ is the assessment of the language aspects, that is lexical, grammatical and phonetic correctness. A teacher assesses every student and the group as a whole. The governing factor in assessment depends on how language difficulties affect the communicative aspect, that is explanation by means of a foreign language and perception of the information during the presentation of WQ-project.

All students were divided into groups to take the exam connected with WQ. One student performed an individual task to determine the effectiveness of WQ-technology application as a means of individual learning and self-control.

The tasks were presented in the form of presentation. Having received a certain task students began to fulfill it. At the same time every student had an e-mail address of a teacher, so students could ask their teacher questions by sending him a message without waiting for the next class.

At the examination students demonstrated their works.

### 3. Results

#### 3.1. Indicators and criteria for assessing the effectiveness of training based on WebQuests

By results of statistical processing of students’ questionnaires it was possible to judge about efficiency of application of WebQuests. In particular, the following important learning effects of this method:

- Ease and efficiency of mastering and fixing the educational material;
- Sustained interest;
- Acquisition of practical applied skills;
- Decreased course by term exams;
- The possibility of revealing creativity;
- Focus on results;
- Focus on professional foreign-language communication.

Having selected the type of the final task for the project WQ for each student a teacher determines which training indicators are important for this type, because different tasks allow you to test different aspects of communicative competence. Table 1 shows the correspondence between task types and verifiable indicators of FL-competence.

<table>
<thead>
<tr>
<th>Types of tasks</th>
<th>Indicators</th>
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**Table 1**

Indicators of the formation of foreign language competencies depending on the type of assignment within the project WebQuest
| Oral presentation                      | 1. Expressiveness of presentation, intonational expressiveness |
|                                      | 2. Body language                                             |
|                                      | 3. Grammar and pronunciation                                 |
|                                      | 4. Organizational structure of the material                  |
| Power-Point presentation             | 1. Technical quality                                         |
|                                      | 2. The aesthetic aspect                                      |
|                                      | 3. Grammar and spelling                                      |
| Written projects                    | 1. Grammar and spelling                                      |
|                                      | 2. Organizational structure of the material                  |
|                                      | 3. Formatting                                                |
| Creative projects                   | 1. Novelty                                                   |
|                                      | 2. Technical quality                                         |
|                                      | 3. Abidance of the laws of the chosen genre                  |
| Group projects                      | 1. Ability to work in a team                                 |
|                                      | 2. Ability to present material orally                        |
|                                      | 3. Ability to resolve conflict situations                    |
| Design                               | 1. Effectiveness of solutions                                |
|                                      | 2. Creativity of solutions                                   |
|                                      | 3. Justification of solutions                                |
| Persuasion                          | 1. Weight of arguments                                       |
|                                      | 2. Choice of means of influence on the audience              |
|                                      | 3. Organization and consistency of speech                    |
| Scientific analysis                 | 1. Gathering of information                                  |
|                                      | 2. Analysis of information                                   |
|                                      | 3. Conclusions                                               |
| Critical analysis                   | 1. Selection of arguments                                    |
2. Ranking of arguments

<table>
<thead>
<tr>
<th>Compilation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Selection of criteria</td>
</tr>
<tr>
<td>2. Organizational structure of the material</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Journalistic projects</th>
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<tbody>
<tr>
<td>1. Accuracy and reliability of presentation</td>
</tr>
<tr>
<td>2. Organizational structure of the material</td>
</tr>
<tr>
<td>3. Completion</td>
</tr>
</tbody>
</table>

When students complete the WQ task, a teacher compiles the evaluation table 2, which details the desired result of the WQ for all the elements of the task presented in Table 1.

### Table 2

Evaluation scale of the formation of foreign language skills following the presentation as a result of the implementation of the WebQuest project

<table>
<thead>
<tr>
<th>Basic skills</th>
<th>Excellent</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to work in a team, cooperation</td>
<td>All students contribute to the final work equally. Good interaction</td>
<td>In general, the team works well, but there are small conflicts, some students do more than others</td>
<td>The team has problems in communication. Each member of the team works by oneself</td>
<td>One or two team members work on the project, the others do nothing. There are serious problems in communication, which hinders work</td>
</tr>
<tr>
<td>Analytical and synthesizing abilities, analysis and synthesis</td>
<td>Excellent content, contains interesting facts from additional sources, original ideas, etc.</td>
<td>The content includes all the information necessary for the disclosure of the topic, but no more</td>
<td>The lack of content, the lack of information</td>
<td>A lot of lacks in content, the mandatory items of the task of the WQ are not met</td>
</tr>
<tr>
<td>Creativity</td>
<td>The work is presented very interestingly, graphically, memorable, attracting attention</td>
<td>The work contains a creative component, but in general the standard manner of presentation is not so interesting</td>
<td>An attempt to include a creative element has been made, but does not contribute to the attractiveness of the project</td>
<td>No creativity or it exists, but it hurts the disclosure of the topic, distracts from the main content. The project is executed on a primitive level</td>
</tr>
<tr>
<td>The logic of the presentation, the integration of the results of personal research</td>
<td>A lot of research has been done by</td>
<td>Good work has been done, but the</td>
<td>The results of the work are not clear and</td>
<td>Minimal research work has been done, the</td>
</tr>
</tbody>
</table>

When students complete the WQ task, a teacher compiles the evaluation table 2, which details the desired result of the WQ for all the elements of the task presented in Table 1.
all the team members, the information is presented in a logical sequence

information is not always logically integrated into the presentation

fragmentary. Logical violations, the statements are unclear, there are no references to the original sources, the absence of quotations

Clarity of presentation and communication

The group was very well prepared, excellent interaction of all team members, clear, logical manner of presentation

Good preparation, however some information was read from the sheet. The material is presented in a good logical sequence

The team has been prepared, but all material is read from the sheet, set out with errors, logic violations

The group was not prepared, the material is presented with a large number of errors, there is no logic of exposition

The total score

Grabbed the attention of the audience

The presentation aroused partial interest of the audience

The material is not clearly stated, the presentation did not cause interest

The Audience does not understand the meaning and is not interested

The evaluation table is handed out to all students and teachers (experts) who are present at the final control lesson; they are invited to use this table in order to assess each presentation of a separate group of students concerning the results following the quest.

### 3.2. Monitoring the pedagogical effect of WebQuests

At the final control and evaluation stage of our research work the analysis of the effectiveness of the formative pedagogical experiment was carried out. Expert pedagogical monitoring involved determining the degree of manifestation of the main components of FL-competence. Experts were asked to assess (on a 10-point scale) the degree of manifestation of the following components among the students in the control and experimental groups with due consideration of indicators shown in Table 3.

<table>
<thead>
<tr>
<th>Table 3</th>
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<tbody>
<tr>
<td>Main components and indicators of students’ foreign language competence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competence components</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linguistic component</td>
<td>Knowledge of vocabulary, grammar, phonetics, spelling</td>
</tr>
<tr>
<td>Discursive component</td>
<td>Construction of oral and written texts</td>
</tr>
<tr>
<td></td>
<td>Analytical and synthesizing abilities, analysis and synthesis</td>
</tr>
<tr>
<td></td>
<td>Logic of presentation, integration of the results of their own research</td>
</tr>
<tr>
<td></td>
<td>Overcoming communication difficulties</td>
</tr>
</tbody>
</table>
We made a comparative analysis of the obtained expert assessments in the control and experimental groups before and after the experiment. According to the results of statistical processing of expert assessments before and after the experiment, the generalized picture of the average points was compiled. It is presented graphically in Figure 1.

![Figure 1](image)

Expert assessments of development of students’ foreign language competence

To verify the reliability of the results of the expert survey, we used the procedure of analyzing statistical significance (Student's t-test), which allows us to determine the level of significance of differences (or similarities) for two independent samples. The initial assessments of FL-competence obtained by students of both groups before the experiment were about equal (see Figure 1, left part). This is evidenced by the results of the first comparative analysis of the average values of expert assessments for the main components of FL-competence: \( t_{cr} = 2.58 \) of \( p \leq 0.01 \); for components: linguistic – \( t = 1.4 \); discursive – \( t = 1.7 \); strategic – \( t = 1.5 \); sociocultural – \( t = 1.3 \); pragmatic – \( t = 1,2 \); personal – \( t = 1,1 \). (Note: \( t_{cr} \) – t critical, \( t \) – t empirical).

After the experiment, statistically significant differences in the average values of expert assessments were established (see Figure 1, right part). Compared to the control group,
students of the experimental group received higher assessments for all components of FL-competence. Especially for such components as: strategic \((t = 19.9)\); personal \((t = 18.2)\); discursive \((t = 18.1)\); pragmatic \((t = 13.3)\); sociocultural \((t = 8.8)\); linguistic \((t = 6.3)\).

Thus, the results of statistical analyses of expert-pedagogical measurements gave reason to state a certain pedagogical effect of the experimental training work carried out on the basis of WebQuests.

### 3.3. Evaluation of the WebQuest technology by students

Analysis of the feedback on the conducted experimental work based on WQ-technology showed that students evaluated this form and method of training positively. In particular, they noted the following positive aspects:

- Increased interest to solving the task set by the teacher due to the unusual form of final control and the fact that each task was formulated taking into account the preferences of each separate group;
- Acquisition of teamwork skills;
- Use of the brainstorming method;
- The students especially noted the possibility of easier and more effective way of learning, consolidation and practical application of the studied material in comparison with the traditional way of taking tests and examinations;
- The possibility to develop imagination and creativity;
- The possibility to solve a real, current business problem.

It is especially important that the students noted the possibilities for developing the skills of a modern manager, such as:

a) Ability to delegate authority;

b) Ability to formulate their ideas clearly and present their work to the target audience in a really spectacular and fascinating way;

c) Ability to work in a team.

Among the most important advantages of the WQ-technology were the following:

- The possibility for the students to evaluate their strengths and weaknesses, as well as to reveal their potential;
- Acquisition of business skills, as well as experience in conducting presentations and negotiations required in their future career;
- Use of special profession-oriented English lexis and enrichment of their vocabulary;
- Involvement of each group member in the process of working on the WQ, their being interested and focused on excellent results;
- Acquisition of new knowledge, expansion of horizons, as well as deeper understanding of the topics being interesting for the students in the course of work;
- Reduction of the stress coursed by term exams and increase of confidence of success;
- The possibility of professional-oriented foreign language communication.

Many students pointed out that their training was really exciting, the groups did a great amount of work, which could have been done much more slowly if the students had been given individual assignments. They also enjoyed the unusual form of the summative assessment, which diversified the process of training and relieved the stress coursed by term exams.

### 4. Discussion

Introduction of WebQuest-technology in foreign language training course allows creating a holistic didactic construct based on this course, which includes a unique form of training, content, teaching and control methods. In addition, this method makes it possible to control students’ individual educational activities remotely in an arranged and didactically structured Internet environment. This ensures the necessary process of students’ immersion into a foreign language information environment with the simultaneous learning of search methods and constructive work in it.
In the process of study, a pedagogical mechanism for activating students' foreign language competence based on a WebQuest-technology was determined and tested. This mechanism involves creating a micro-social educational network as a part of a group quest. Personalized role assignments, which are given to network participants as members of one virtual team working on a common project, are consolidated through this network. This creates a permanent communication process with elements of cooperation, ensures students’ personal involvement in continuous information and language activities in interactive mode of project preparation, its public presentation and evaluation.

5. Conclusions
As the results showed the use of WebQuest technology allows creating a communicative-didactic space of learning a foreign language by immersing students in a foreign language information environment and controlling their individual learning activities outside the classroom remotely.

The didactic possibilities of WQ-technology involve the creation of attractive and intensive educational information and communication environment for students' foreign language activities. WebQuests make it possible to deploy a virtual (distributed) learning process by uniting the participants of one web project into a single micro-social educational network within this environment. Thus, with the help of WebQuest-technology one of the most serious problems of a non-linguistic university, that is to provide continuous intensive educational communications of students in a foreign language environment outside the classroom, is solved.

Fundamentally new WebQuest-technology of training, testing and assessment of knowledge can create positive motivation for learning, reduce the fear of negative assessment and the exam stress, promote the development of students’ creative thinking, increase the teachers’ authority as a mentor and organizer of the educational process.

Among the pedagogical conditions determining the use of WebQuest-technology in order to develop foreign language competence of non-linguistic university students are the following:
• Firstly, as a part of work on an information project it is necessary to provide as much freedom for students’ creativity as possible to increase their motivation for language learning;
• Secondly, it is necessary to fill WebQuests with interesting, diverse, relevant, professionally significant foreign language material using the means of virtual visibility;
• Thirdly, it is necessary to rely on search and research, game, interactive, team forms and methods of students' work on a web project to ensure a mode of constant interpersonal interaction of students in the language they study.

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