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Internet technologies in foreign language learning

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Abstract

The article dealt with the problem of Internet technology implementation in the process of foreign language learning. The authors considered the term "technology" in the context of language education and defined Internet technologies as techniques, methods, and ways of introducing Internet services and Internet materials into the learning process. The paper revealed didactic properties and functions of Internet technologies, highlighting a web quest as the most appropriate for organizing students' group research. The authors presented methods of encouraging students' cognitive activity using a web quest technology and evaluation criteria for Internet service selection to provide tools necessary for project participants' collaboration and teacher monitoring. Authenticity and volume of Internet material need strict assessment criteria of which were provided in the paper.

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1 Introduction

Modern society imposes ever-higher demands on foreign language teaching. The volume of information is growing, and the previously used methods of its transmission, storage, and processing are becoming ineffective. There is a need to find alternative ways of storing and accumulating data, easy to access, and extensive in terms of the amount of information provided. Such alternative didactic tools include computer technology and the Internet that provide almost unlimited possibilities to accumulate and search vast amounts of lexical, grammatical, spelling, audio and video information for foreign language learning. The research aim is to consider didactic properties and functions of Internet technologies, principles of their use, academic tasks that can be solved by their integration into language education.

2 Materials and Methods

It is necessary to consider the basic concepts and definitions to analyze foreign language learning with Internet technologies incorporation. The term “Internet technology” is used most widely in the scientific literature. It is necessary to analyze the term “technology” and it's understanding directly in the context of language education. The term "technology" came to the field of education from industry and construction, where it denoted the manufacturing process in the most efficient way. Therefore, technology is often interpreted as a set of techniques to achieve the final result most reasonably. At the present stage of the teaching methodology development, “technology” in education is defined as a system of algorithmic actions and operations, conditions ensuring the achievement of planned results, and as the step-by-step implementation of training procedures. However, teaching technology is one of the varieties of social technologies. Therefore, it is difficult to limit it to a strictly specified algorithm and the tools used. Thus, a large number of new, non-traditional technologies appear in the modern methodology of foreign language teaching. There are different approaches to the study of “technology” (Gal’skova, 2009). The first approach focuses on the expanding possibilities of using technical means in the process of teaching a foreign language assigning them a leading role in organizing independent and creative activity of a student, as well as for his self-realization. The second approach is associated with the technology of the educational process itself, representing methods, techniques for organizing joint activities of the teacher and students to achieve the learning objectives. The third approach refers to technologies that have a high level of instrumentality and are not entirely educational but enter the sphere of language education as a result and system. The examples of such technologies are a "language portfolio" and lingua didactic testing.

Some scientists (Sysoyev & Evstigneev, 2008), do not consider the concept of "technology" separately from the Internet and understand it as a combination of forms, methods, techniques of a foreign language teaching using the Internet. Having analyzed the definitions of the term “technology,” we concluded that Internet technology could be defined as techniques, methods, and ways of introducing Internet services and Internet materials into foreign language teaching. Incorporation of Internet technologies in the learning process should meet the requirements for technical training tools such as principles of dependence, necessity, information value, reliability. According to the above principles, the use of Internet technologies in the educational process should be determined by the goals, stage and content of training, students’ age, and the methodology used at this stage of training. The principle of necessity implies the use of Internet technologies only if it helps increase efficiency in one aspect of the learning process: increase the speed of information obtaining, activate speech activity, and increase motivation for mastering a foreign language. The principle of information value implies the use of Internet technologies as an aid that allows getting maximum information in a short time. The principle of reliability involves experimental verification of Internet services, as well as preparatory and organizational stages of obtaining the best learning outcomes.

We are teaching a new generation of students, the so-called “digital natives” (Prensky & Thiagarajan, 2007), who regularly use online tools and online materials. The teacher should acknowledge IT penetration into all spheres of modern society, students' enthusiasm for computer technology, and intensive communication through social networks, skype, and email. Students’ interest is a powerful motivation tool for teaching a foreign language as well as for developing the learner’s personality, intellectual abilities, and

applied skills. Teaching a foreign language using Internet technologies has its peculiarity presented in the interaction of a person and a technical tool (a computer) in solving lingua academic tasks. Scientists Karamysheva (2001), single out the principles of using a computer as a learning tool: dialog interaction, interactivity, adaptability, and a friendly interface. The principle of dialog interaction means human-computer interaction and is reflected in the automated system created as a dialog one. The principle of interactivity implies the active cognitive activity of a student based on technical tools control. The principle of adaptability is realized through adjusting the training system to a specific learning process taking into account the individual pace of students' work, and selected strategy for managing the process. The principle of a friendly interface implies ensuring positive emotional background and conditions for comfortable student-computer interaction, which is convenient information exchange, quick, adequate feedback and assistance, and the optimal operation mode.

Determining the functions of Internet technologies in the process of a foreign language teaching is associated with modeling the cognitive and professional activities of a teacher and students. In the educational process, the functions of the teacher and students are interrelated. Therefore, Internet services that play the role of the teacher can also be a tool for the learner. For example, reference and information networks can perform the informative function of the teacher and be an information aid for students. The functions of a tool for teachers and students' activity are performed by general-purpose Internet services that do not address educational tasks. These are text editors that provide technical support for the learning process; various programs such as databases and information resources of the Internet, enabling teachers and students to obtain relevant information; services of authentic written communication. However, it should be noted that computerized teaching tools should not be opposed to the teacher as they cannot completely replace the teacher's activities related to the pedagogic function. The most constructive approach seems to be considering Internet technology as a tool to support the interrelated educational and cognitive activities of the student and teacher. A significant advantage of using the Internet in the process of a foreign language teaching is systematic, immediate feedback which helps to implement various forms of interpersonal and professional communication such as oral communication at teleconferences and written distant communication like e-mail, chat rooms, social networks, blogs, individual communication as personal correspondence and group communication like a message board.

Furthermore, the Internet makes it possible to introduce additional ways of presenting information that corresponds to the didactic principle of visualization. The more analyzers are involved in the process of perception; the more temporary nerve connections are formed in the cerebral cortex; the more conditions are created for a more durable imprint of this image in memory. Background information of foreign texts enables creating associative connections with internal emotional experiences, which result in psychological stress relief and tension break, as well as in cognitive processes stimulation, foreign-speaking, and writing activity.

In the context of Internet technologies use, it is possible to talk about a different approach to creating a computer-based learning environment. It focuses not on the development of a specialized software product but on the systemic and integrated use of Internet resources carefully selected for the ultimate goals of teaching a foreign language such as reference-bibliographic systems, real-time interactive lessons, forums, chats, e-mail, authentic training materials, or Web 2.0 services. Some scientists (Warschauer & Meskill, 2000), think that the inclusion of technologies in the educational process should be based on cognitive and socio-cognitive approaches. According to the cognitive approach, learning a foreign language is individual psycholinguistic action when students create a model of the language system based on innate cognitive knowledge in interaction with the language. In the context of the cognitive approach, errors are viewed as side effects of the creative process of cognition, including simplification, generalization, transference, and other cognitive strategies (Chomsky, 1986). Therefore, it can be concluded that Internet technologies facilitate foreign language teaching immersing students in a full-fledged language context to build knowledge. The example of such technologies is the use of Internet services for text reconstruction, software for building concordances, and multimedia modeling programs. According to the socio-cognitive approach, foreign language learning is socialization into a particular discursive community (Gee, 2008). The approach suggests that students immerse in authentic social communication not only to learn a language but mostly to get international social experience in situations that students will encounter in real-life. It is, therefore, vital that Internet technologies create possibilities of authentic and significant foreign-language communication in and out of class, providing students with tools for self-development in social, cultural, professional, and linguistic

fields. There are five types of educational Internet technologies: a "hotlist," a "treasure hunt," a "subject sampler," a "multimedia scrapbook," and a "web quest." A "hotlist" is a list of Internet sites on a particular topic. To make it, a keyword is entered in the information search field, and the Internet will display a list of sites on the topic like a hotlist, which can later be used in the learning process. A "multimedia scrapbook" is a collection of multimedia resources on a topic, including audio and video files, pictures, cartoons, and feature films that can easily be downloaded by students as information material on the topic. A "treasure hunt" provides links to various sites on the topic under study. Each link is accompanied by questions that guide the students' search activities. After answering all the questions of the "treasure hunt," students are asked one general question for the overall understanding of the topic. A "subject sampler" technology offers students a set of issues to discuss after studying text and multimedia materials using links from the Internet. However, the questions should provoke an intense emotional response followed by argumentation and discussion. A "web quest" is the most challenging method of using Internet materials. It combines elements of all the above methods of working with Internet resources. A "web quest" is a project in small groups with a preliminary immersion in the studied problem. The teacher selects Internet resources so that each group studies only one aspect of the problem. After students have discussed questions they switch places so that in each new group there is a student from the primary group. Thus, all members of the group discuss and exchange information about all aspects of the problem. Working in small groups, students analyze, synthesize information, express their opinion, and argue. Considering the problem in various aspects, students should answer one general question that has not one but several answers. It is possible to conclude that a "web quest" is a scenario for students' project activities on any topic. Students learn to think critically, reason, and find ways to solve problem situations. Participation in a "web quest" affects the internal conditions of personality development. A "web quest" stimulates students' cognitive activity, since solving a problem they face several difficulties. Having overcome the difficulties, students gain new ways of action and self-organization in mastering a foreign language. Learners receive one common problem and are assigned roles following which they model further behavior, set intermediate goals and means to achieve them. Students should independently and actively overcome all emerging intellectual difficulties.

The problem is evident, but the algorithm for solving it is unknown. It can be found only by mental effort. A sense of duty, responsibility, and a challenge to find the only right decision excite students' cognitive needs. A problem situation boosts intellectual activity when students apply the acquired scientific knowledge and experience.

The cognitive activity can be defined as voluntary actions aimed at cognizing the environment with the help of such mental processes as perception, thinking, memory, attention, and speech. Any higher mental function was external. It was a social relation between people and only then turned into an internal psychological function (Vygotskij, 1956). In various situations of collaborative activity, students play different roles performing various functions like executive, managing and controlling. Interaction in simulated problem situations enables students to transfer external functional positions to internal ones developing their ability to self-management and gain knowledge and skills. The following methods of encouraging cognitive activity in a "web quest" could be outlined:

a) Novelty, authenticity, and relevance of the language material to the topic, which encourages memorization and use of the studied lexical, grammatical and phonetic structures; semantization, which implies the disclosure of lexical units meaning by arousing interest, for example, using authentic multimedia Internet resources.
b) Heuristic cognition implies that students solve a difficult significant problem with the help of teacher supervision.
c) Use of modern methods of information processing, storage, and transmission; research methods of independent study to solve a critical problem like analysis, synthesis, making conclusions.
d) Evaluation of both the entire group and each student at the final stage of a "web quest" (at the organizational stage primary groups are not divided into "high-performance" and "low-performance");
e) A competent and independent jury (teachers, students from other groups) presenting results of group research work at the final stage.

Project work is a very flexible methodology and is efficient for teaching students of both levels: beginners and advanced ones (Hutchinson, 1991). Not all students need a firm teacher's control. Giving advanced students

more freedom, the teacher can devote more time to low-performing students. When working in a group on a project, lower-level learners can search for information, work with a computer, do wall newspapers, posters, thus compensate for insufficient language proficiency. The idea that everyone has equal opportunities implies that everyone learns according to their abilities. The efforts of both high-level and low-level learners are evaluated by their progress not compared to others. Situations, when a student has to act independently, excite his interest, make him use all his intellectual potential, and the knowledge gained when writing a report on the work done and presenting its results. Working in a team, students perform various social roles: an organizer, a researcher, an expert. They simulate their future life activities. Project work in small groups creates personality-centered situations when participants can demonstrate their abilities. However, a student can outline his further plan of action only after he determines his position to other people, masters his own emotions, and, if necessary, overcome the internal crisis.

Flexible teacher monitoring of students learning and cognitive activities in project work is realized through creating conditions necessary for working on a project: planning stages, selecting Internet resources, conducting interviews and questioning of students to determine the most relevant problems, setting intermediate tasks to solve the main problem, drawing up a scenario and role description for small and large groups. The teacher coordinates independent learning and cognitive activity of students encouraging cooperation rather than competition within groups, helping to solve not only arising interpersonal problems but also psychological ones caused by different language levels of students in a group, participating in the process of roles distribution within groups. Internet technologies (techniques, methods, and ways of introducing Internet services and Internet materials into foreign language teaching) provide immediate connection and flexible teacher's control of students' work on the project. Many new Web 2.0 network services that can be successfully integrated into a foreign language education have appeared over the past decade. The adjective "social" in the concepts of "social service" and "social resource" is the key and shows that all these resources are designed to develop various forms of network interaction of all subjects in the learning process for educational purposes and independent content creation. Web 2.0 services make it possible to organize the following activities: joint search and storage of information, sharing of photographic materials, creation and sharing of media materials; joint creation and editing of hypertexts; joint editing and use of text documents, spreadsheets, presentations and other types of documents on the network; joint editing and use of maps and schemes. Web 2.0 services could be classified according to the main areas of their application. Services for storing documents: Google disk, Scribd, DocMe, Crocodoc. Services for creating and storing presentations: Prezi, Slideboom, Calameo, author stream, Slideshare, Slideserve. Services for creating surveys and tests: Proprofs, Quizlet, Quizmaker, Hot Potatoes, Online Test Pad, Simpoll. Services for creating virtual classes: Edmodo. Services for creating educational games: Umapalata, LearningApps.org, ClassTools. Services for creating intelligence cards: Mindmeister, Xmind, Mindomo. Services for storing bookmarks: Memori, Delicious, Xmarks, Evenote, Lino. Video screen capture services: Screencastomatic, ScreenCastle. Services for working with photos and slide shows: Picasa, Panoramio, PhotoPeach, Tripadvisor. Services for creating websites and blogs: Google sites, blogger, Jimdo. Services for creating podcasts: SoundCloud, buzzsprout, Opinion podcast, PodFM. To select the most appropriate Internet service for organizing and guiding students group work in foreign language learning virtually, it is necessary to analyze them according to the following criteria: availability of tools that ensure the activity of each project participant in following capabilities, provision of virtual space for the organization of independent and teamwork to solve a common problem, availability of tools for creating a product of collaborative research, free access to the service at any time of the day from any location, a friendly interface and instructions for working with the service. Another equally important task that a teacher has to solve when organizing foreign language learning with Internet technologies is authenticity, scientific, and educational evaluation of the material found on the Internet before using it for educational purposes. Internet resources are limitless and constantly updated. Websites quality assessment comprises such characteristics as design, usability, rich content, correct language, and the like. Different user audiences and the genre specificity of sites, for example, commercial sites, news sites, personal pages, information material, scientific publications), will put forward different content requirements and imply different evaluation criteria. However, mandatory for assessing the credibility of the information presented on sites of all types, maybe provision of information about the owners of the site, the author(s) of the materials posted on the site, the date of the site creation, the date of the last updating, links to information sources, links to similar resources (Bovtenko, 2005). The main criteria for selecting Internet resources:

content evaluation, when a teacher acts simultaneously as a reader, an expert, a censor; assessment of general convenience of the Internet resource content use (graphics, design, color scheme, perception and uniqueness of the menu and structural elements); assessment of information architecture (quality of the organizational structure of the resource) (Raickaya, 2007). Evaluation of information presented on the Internet is time-consuming and complex. The following criteria are important for determining the content value: credibility (the author's recognition and authority, bibliographic information about the author, contact information, the publisher or site owner, references and hyperlinks to other sources); frequency of updating the resource as an indication of the site updating frequency and the last updating; target audience as information in the site should meet the needs of the target audience; information relevance as a correspondence of the content to the site theme and information flow, frequency of content change and provision of old data archive; ease of use; architecture as design and graphics quality, amount of advertising; video ecology as font size, following grammar, spelling and other editing rules, speed of eyes getting tired. Another important criterion: the complexity of the language material on the selected Internet sites should be equal to the complexity of the texts presented to students at the preparatory stage of group research work. Selected resources do not need further adaptation and are used by students in an authentic form. Consequently, thoroughly selected Internet resources content should best support the solution of the project task.

3 Results and Discussions

The key didactic opportunities of authentic Internet materials are language material authenticity, the hypertext, systematization of material according to thematic blocks, the simultaneous impact of visual, audio, kinesthetic modalities, resources stimulating reading, listening, writing and speaking activities, visual aids in text presentation (schemes, graphs, maps, images) that facilitate understanding. The methodological value of Internet materials for the teacher is an opportunity to monitor each member of the group and organize students' work as specified by the project task. Students can record information from a website on electronic media for further independent work on the project task and can access the site at any time for revision, thus saving time and effort. In the course of work on the project with online resources, participants face challenging situations that make them overcome inner stress and make intellectual, creative, emotional efforts. Knowledge, skills, abilities, qualities acquired in this way become personal and establish the basis for further self-development. The stages of students' analytical activity are: determining the subject and object of analysis, hypothesizing, selection of analysis methods, argumentation, and analytical conclusions. Internet technologies in language learning help students realize themselves as a part of the educational environment and facilitate their cognitive activity. Didactic properties of the Internet are telecommunication (virtual indirect synchronous and asynchronous communication), access to spatially remote information sources, the simultaneous impact of visual, audial, kinesthetic modalities on the student, connection of speech activity (reading, listening, synchronous and asynchronous communication, oral or written), visual clarity of the presented material, development of critical thinking.

4 Conclusion

Implementation of Internet technologies into the process of a foreign language learning enables solving such didactic tasks as they transition to personality-oriented learning, stimulation of focused and motivated speech activity, and provision of favorable emotional impact on students, increase of students' cognitive activity, the efficiency of independent students learning. Prospects for further research may be related to the determination of the scope of Internet technologies and methods of their integration into the learning process.

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