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A Computer-Based Approach to Teaching Foreign Languages

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ABSTRACTS

In the context of the modernization of modern education, practical teachers strive for independence in the choice of teaching aids, in particular, foreign languages (FL), for a creative rethinking of the content of education and increasingly resort to the use of modern methods and information technologies in the learning process. The processes of global informatization of all spheres of public life are developing in the world community. The level of information technology development and its pace depends on the state of the economy, the quality of life of people, national security, and the role of the state in the world community. In all developed countries and many developing countries, there are intensive processes of informatization of education.

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1. INTRODUCTION

Ways are being developed to increase the effectiveness of general education, and invest heavily in the development and implementation of new information technologies. The trends of wide use in education of distance learning as the most important component of the emerging system of open education are more and more fully manifested. At present, it is generally recognized that with the advent of the Internet, the modern education system has entered a new phase of its development due to the intensive development of the possibilities of new information technologies. In this context, an urgent task is the improvement of the didactic theory of learning concerning new educational conditions. The efforts of many theorists and practitioners of education today are concentrated in the field of computer technologies of training and the various types of organization of educational activity connected with it 11 (Daramola, 2022b).

The current stage of technology development is characterized by the transition to the creation of multifunctional educational complexes and automated training systems based on computers (Apellido *et al.,* 2021). Such complexes and systems have universal didactic possibilities. They allow conducting of training in an interactive mode, taking into account the individual capabilities of the trainees, to provide distance learning using modern technologies. The development of distance learning, in particular, can serve as the driving force behind the progressive reform of vocational education in general, the transition from a reproductive to an active paradigm of knowledge acquisition, to education based on active and constructive joint activity. As Russian practice shows, the use of information technology and the Internet in general education schools and pedagogical universities is still limited and poorly linked to the educational process. At present, these are usually computer science classes. Distance learning for schoolchildren is in its infancy (Agustina & Nandiyanto, 2021).

The development of Russian-language multimedia educational resources is proceeding extremely slowly. In general, the analysis of scientific research shows that, despite the significant progress that has been made recently in the implementation of various computer learning technologies, the potential of information technology is not being realized in the educational process yet due to the lack of multimedia educational complexes, algorithms for their development and application, guidelines for their effective application. Thus, the theoretical and practical significance, insufficient development of the methodology and methodology of computer technologies for teaching English were the reason for choosing the research problem, which is to find and implement ways and means of organizing computer teaching of foreign languages, experimental approbation, and introduction of computer technologies in the process of teaching foreign languages.

The object of this study is the process of teaching foreign languages in various forms of education using information technology. The purpose of our study is to increase the effectiveness of the learning process of foreign languages when using information technology.

The subject of the research is information technologies in the process of teaching foreign languages. Following the purpose, object, and subject of the study, the following hypothesis Improving the effectiveness of teaching foreign languages through the use of information technologies will be successful if their respective role and place in the educational process are specifically defined, the basic concepts of distance learning are clarified and determined; methodological and technical aspects of teaching programs of foreign languages have been developed and implemented through certain models and educational and methodological

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complexes that contribute to improving the quality of the educational process. To achieve the goal of the study and test the hypothesis, the following tasks were set:

(i) Describe Russian and foreign experience in using new information technology in teaching foreign languages;
(ii) Analyze the existing information technology software in the field of teaching English and the possibility of their application in this research;
(iii) Determine the pedagogical need for the use of information technology in teaching foreign languages through testing and questioning.

2. METHODS

The methodological basis of the study was the provisions of pedagogy and psychology about the development of human consciousness and activity, modern socio-pedagogical concepts in the field of secondary and higher education, positions and ideas about the active, creative essence of the individual, about interaction and interdependence teacher and student.

The following methods were used in the research process:

(i) analysis of psychological, pedagogical, and methodological literature on the research problem;
(ii) study of special literature on information technologies and the structure of computer networks;
(iii) analysis of modern domestic and foreign distance learning programs for foreign languages;
(iv) systematization of the received information for carrying out experimental research.

2.1. The theoretical framework of the research

The theoretical basis of the research was formed by the fundamental ideas on teaching methods (Artamevia & Nandiyanto, 2021; Riyanto, *et al.,* 2021; Anh, 2022; Glorifica, 2021; Morbo, 2021; Babalola, *et al.,* 2021), the formation of consciousness and behavior of students (Cabanatuan & Ahmad, 2022), implemented expressions of the speaker (Ekamilasari & Pursitasari, 2021), as well as ideas developed in the works of A.A. Andreeva, S.D. Karakozova, V.G. Leonov, provisions on the unity of theoretical scientific and practical, professional and humanitarian training of specialists (AL-Momani & Rababa, 2022) about the goals, structure, means of formation and implementation of the process of distance learning of foreign languages at the university (Shaturaev, 2022). The process of teaching English is a complex, constantly evolving system. Computerization of teaching a foreign language helps to facilitate access to information formations and reduce language learning time. At the moment, there is a huge selection of multimedia products, Internet pages containing information necessary for learning a foreign language, electronic textbooks, and databases with thematic texts and exercises.

The scientific novelty of the research lies in:

(i) identifying new opportunities for information technology software in teaching English;
(ii) Improving the methods of teaching foreign languages, and improving the quality of the structure of the educational process.

The theoretical significance of the study lies in:

(i) development of a didactic approach to computer technologies for teaching the English language
(ii) determination of educational and methodological approaches to the creation of new versions of models of teaching English;

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(iii) expanding the statistical, factual, and source databases of Russian distance education research; bringing in new facts, data, and concepts.

The practical significance of the study is as follows:

(i) the developed and tested model of the implementation of the process of teaching foreign languages with the help of computer technology allows you to optimize its content in a scientific context and improve the efficiency of mastering the material in a specific discipline "foreign language" by students;

(ii) the results obtained in the course of the study can be used by average and higher education institutions to optimize the content of teaching English to improve the quality of the educational process.

3. RESULTS AND DISCUSSION

The reliability and validity of scientific results, conclusions, and recommendations were provided by a wide source base, the use of a set of methods adequate to the subject, purpose, and objectives of the study, a comprehensive study of the problem, the volume selection of experimental objects, implementation of the developed recommendations into practice and their evaluation by students and teachers, personal pedagogical experience. Characteristic features of modern computer learning technologies Modern computer technologies are an integral part of multimedia technologies (from the English. multi - a lot and media - environment). These technologies are considered by us as educational information technologies that integrate audiovisual information of any form (text, graphics, animation, etc.), implement an interactive dialogue between the user and the system, and a variety of forms of independent information processing activity. They represent a huge range of room for improvement in the educational process and the education system as a whole. The creation of a system-thematic multimedia complex is an urgent problem (Riza *et al.,* 2018). Let's answer some questions:

(i) What is the place of the computer in teaching foreign languages?

(ii) What methodological functions can a computer perform when teaching a foreign language?

Let's start with the first question: "what place does a computer take in teaching a foreign language?" Currently, there are many opinions about using a computer in teaching a foreign language or not to use. Some believe that the computer should replace the teacher, while others - that the computer is not able to present the material in the way it does the teacher. The computer should serve as an aid, like any other technical teaching aid or textbook. It should not be forgotten that the computer has several advantages: it combines video-audio information, textual information, the ability to record one's voice, and further self-correct pronunciation. The computer provides great opportunities for testing the level of proficiency in a foreign language or topic, without or with partial participation of the teacher, which will reduce the time for checking the results. Tests can be very different: substitution, selective, true-false, and template. For example, when asked:

“Listen carefully to the cue and type it exactly as it was said,” the computer will check the correctness of the answers following the template and write the results to the database. Let us single out the main methodological functions implemented utilizing a computer:

3.1. Primary

(i) Informative - the main advantage of a computer is the ability to store and process large amounts of information, so the PC is widely used in the process of teaching languages as an information system;

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(ii) Training - the use of a computer for training to form strong skills remained until recently the main area for the introduction of computer technology in the educational process in a foreign language. There are even some advantages of a personal computer compared to a teacher in the process of training and consolidating educational material: an unlimited amount of time, complete impartiality, objectivity, and boundless patience;
(iii) Controlling and corrective - the use of a personal computer for the current and final control of the results of educational activities gives the following advantages implementation of differentiated and individual approaches in the conditions of frontal control implementation of strong feedback embodiment requirements for maximum objectivity of control;
(iv) Reduction of time spent on control;
(v) The release of the teacher from the laborious work of processing the results of control.

3.2. Minor

(i) Communicative - it is possible to communicate in foreign chat rooms
(ii) Organizational and stimulating - at present, the computer attracts with its novelty and in itself is a stimulating factor.

These advantages have contributed to the widespread use of control programs and the inclusion of control modules in most computer training programs which provide for the automatic execution of the following operations:
(i) Acceptance and recognition of the student's answer;
(ii) Analysis and determination of the correctness of the answer;
(iii) Remembering the result and/or reporting it to the student.

Professional support of the teacher's activities with the help of a computer as an activity tool is carried out using special tools created for these purposes. These tools include mainly generative programs and expert systems. As a tool for the activity of trainees and educators, a computer is used in the educational process in a foreign language, primarily to obtain information and technical support. In addition, educators can use the PC as a tool for their professional activities. The functions of the computer as a tool for the activity of the teacher, presented above, are based on its ability to accurately record facts, store and transmit chi a large amount of information, group, and statistical processing of data. This allows you to use it to optimize learning management, and increase the efficiency and objectivity of the educational process, while significantly saving the teacher's time in the following areas:
(i) Obtaining information support;
(ii) Diagnostics, registration, and systematization of training parameters;
(iii) Work with educational materials (search, analysis, selection, design, creation);
(iv) Organization of collective work;
(v) Implementation of distance learning.

When working with educational materials, the PC provides the teacher with a variety of types of assistance, which consists not only in simplifying the search for the necessary information when creating new educational materials through the use of reference and information support systems but also in the design of teaching materials (texts, drawings, graphs), as well as in the analysis of existing developments. Automatic analysis, selection, and prediction of the effectiveness of training materials are important areas of using a computer as a tool for information support of a teacher's activities. The teacher can not only select materials for training (compose lexical and grammatical minimums, select texts and exercises), but also analyze texts and entire educational benefits. The procedure and

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technique for compiling frequency dictionaries using a computer are quite mature and reliable, and programs of this type are getting more and more painful neck distribution (a detailed description of such programs can be found on the Internet). Selected as a result of machine processing of a selective set of texts and lexical units ordered according to various criteria serve as the basis for solving a whole range of lingua didactic tasks: creating basic languages, compiling grammar reference books, developing lexical minimums, etc. There are specialized text analysis programs in which the computer acts as an expert (Daramola, 2022a). They help the user-teacher to select and analyze to revise study materials. An example is Microsoft Word, which provides the following stages of text analysis:

(i) Counting the number of letters, words, long words (more than six letters), and phrases;
(ii) Establishing the average length of words and phrases;
(iii) Revealing the structure of proposals;
(iv) Determination of the level of complexity of the text by the Ricks index.

Such systems are designed to classify texts for learning according to the parameter of their "readability" since it is believed that the more text contains long words and phrases, as well as verbs in the passive form, the less “readable” it is. In addition to the development of printed educational materials, modern computer tools allow teachers to independently create new computer-based learning programs (CEPs) without programming. For this, there are several opportunities: modification and addition of open CPC databases and the use of so-called copyright or generative programs. These programs are called generative since they independently generate CPC from the language material entered by the teacher. The work of a teacher with generative CPs takes place in an interactive mode and comes down to answers to requests: “enter a sentence”, “enter a rule”, “Enter text”, etc.

The main types of generated CPCs include:

(i) Multiple choice tests (with one or more correct answers);
(ii) Texts with omissions (with various options for providing user support);
(iii) Linguistic games (crosswords);

The use of a PC as a tool to support the professional activities of a teacher of a foreign language allows not only to work more efficiently with educational materials, but also to optimize the educational process by systematically recording its parameters and creating data banks for each student and the group of students as a whole (information about the initial level of knowledge, the results of ongoing monitoring average score, data on the prevailing pace of work, etc.) (Mariyandi *et al.,* 2021). Systems for recording and analyzing student errors, provided for in many CEPs or existing in the form of separate programs, make it possible to identify the dynamics and patterns of the learning process in the course of experimental pedagogical research and make it possible to simplify the work of organizing the educational process. At present, computer systems for diagnosing abilities, designed to determine the degree of professional suitability of students and university applicants for studying a foreign language, are becoming more widespread. As a means of technical support for the teacher's activities, the PC opens broad prospects for improving the organization of the learning process, moreover, some organizational forms of the learning process cannot be implemented without computer applications. Only local computer networks and telecommunication facilities make it possible to organize real-time collective creative work on a joint project of students from different educational institutions (for example, the release of a newspaper issue).

At the same time, the process of collective creativity allows not only to increase the level of motivation in learning a foreign language but also to make a task, for example, teaching writing, truly communicative. Another specific computer form of education is distance

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learning, the advantage of which is that it makes it possible to study a foreign language with a teacher for those categories of people who are excluded even from distance learning (disabled people, people living in remote and hard-to-reach areas). Thus, the teaching use of the PC as an activity tool provides an exemption from routine work, the possibility of continuous improvement of educational materials, and operational control over the progress of the educational process concerning a specific student or a group of students as a whole, the introduction of new organizational forms of education. About the student, a computer can perform many functions, acting as:

(i) Teacher;
(ii) An expert;
(iii) Business partner;
(iv) Activity tool;
(v) Trainee.

Students can use the PC following their individual needs at various stages of work and in various capacities. Due to the possibilities of implementing the functions of a teacher, a computer is often used in the process of independent homework of students, in the course of autonomous language learning, to fill knowledge gaps for lagging students. In this situation, training and educational computer programs are used, specially created for educational purposes.

(i) When working independently with the COP, the student can:
(ii) Receive a study assignment;
(iii) Request additional information necessary for its implementation;
(iv) Understand how to complete the task;
(v) Enter the answer;
(vi) Get analysis and evaluation of the answer.

We can even note many advantages of using a PC for self-study of educational material compared to classroom lessons with a teacher:

(i) Unlimited time off work, determined by the needs of the student;
(ii) Free work mode (selection of work time, definition of pauses in work, and pace assimilation of the material);
(iii) Exclusion of the impact of subjective factors in the work (no bias towards any of the students; evaluating the answer based on clear criteria without comparison with the results of the work of other students, unlimited patience, non-disclosure of shortcomings in the work).

The computer can be used as an expert at the final stage of work for correction and expert evaluation of the completed task. Many students prefer to use a computer in the process of performing “large” tasks (writing an essay, term paper, or abstract) associated with writing large texts. In this situation, the computer is used as an activity partner and at the same time a piece of information and technical support tool.

Using computers, students:

(i) Enter new textual information using the keyboard or use already prepared materials by scanning them or entering them into new files from diskettes;
(ii) Get access to extensive information in their native and foreign languages thanks to reference and information systems and networks, using, if necessary, machine translation systems;
(iii) Draw up, edit and improve written works with the help of programs such as "text editors", spellers, and document templates;

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(iv) Work with interactive text generation programs and automatic text processing systems (abstract summarizing, etc.);

(v) Systematize and supplement textual information with tables, graphs, diagrams, and drawings.

Besides seeking to extend the results of this research to other observers from other careers, our research could evolve in the following directions (See **Figure 1**);

(i) Experimenting with mixed learning strategies (serialist-holist) to find more appropriate ways to learn Systems Thinking as a second language;

(ii) Re-interpreting the Second-Language Model in Terms of Pask's theories of education;

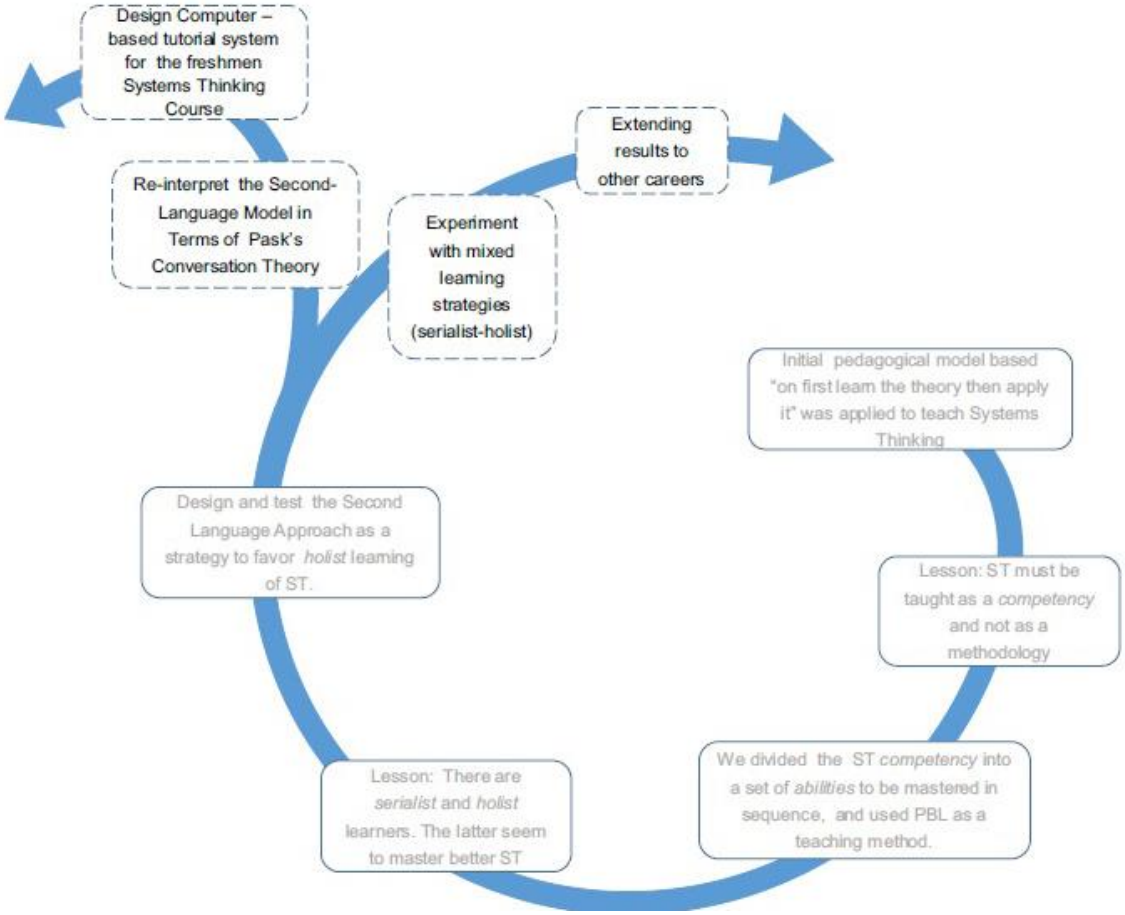

Figure 1. Future research.

4. CONCLUSION

The main purpose of the computer as a tool for educational and cognitive activity is to provide maximum support in mastering the language, which allows the student to move on to more rational forms of learning that bridge the gap between obtaining knowledge and their actual assimilation. Students use a PC as an activity tool not only to receive information and technical support but also to organize distance learning communication using computer telecommunication networks. Only modern computer technologies make it possible to implement part-time language teaching in the form of distance learning (learning at a distance), which is successfully carried out both within the framework of individual inter-university programs and on the scale of entire educational institutions (for example, the Open

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University of London in the UK, the National Technological University of London Colorado in the USA). The most common computer tools used for distance learning are:

(i) Telematics means (interactive television) using cable television networks;
(ii) Regional and global telecommunication networks;
(iii) Educational computer courses on laser disks.

The form of distance learning is also interesting in that it allows you to make the process of language acquisition more natural from the point of view of the conditions for its course since the language is studied not in the classroom at the same time by a large number of students within the time allotted for the lesson, but individually, moreover, using various organizational forms of work. Students acquire some autonomy, not only physical but also social and psychological, choosing the most comfortable and natural conditions for learning. It can be concluded that the use of a computer in the process of language acquisition creates conditions for foreign language communication, provides wide access to information, and helps in the independent learning of a foreign language.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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