

Characteristics of the Influence of Digital Technologies on the System of Learning a Foreign Language



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ABSTRACT

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A foreign language is a subject that involves the creation of an artificial language environment for students, which predetermines the variable inclusion of various digital learning tools in new perspectives for teaching a foreign language. The main purpose of the study is to determine the features of the influence of digital technologies on the system of learning a foreign language. To achieve our goals, we have applied the methodology of functional modelling, which allows us to graphically depict how the process of learning a foreign language can be improved through the use of digital technologies. The world community is gradually but surely moving towards Industry 4.0, which brings new opportunities for various everyday processes. Globalization is massively trying to introduce English into all types of people's activities, but the study of other languages does not stand still and more and more people are striving to learn new types of foreign languages, which is why the chosen research topic is extremely relevant today. Based on the results of the study, a functional model was formed that demonstrates the process of learning foreign languages through the use of modern digital technologies. The study has limitations and is associated with the impossibility of applying the proposed model outside of one country and all languages. Further research needs to expand the capabilities of the functional model and form elements of flexibility in it for use in the study of foreign languages that are very complex in their structure.

1. INTRODUCTION

Informatization of society is a global social process, the peculiarity of which is that the dominant activity in the sphere of social production is the collection, accumulation, production, processing, storage, transmission and use of information. These processes are carried out on the basis of modern means of processor and computer technology, as well as on the basis of various means of information exchange.

Information technologies are an integral part of the modern world, to a large extent determine the further economic and social development of mankind. Under these conditions, the education system also requires revolutionary changes. Hence, we can say that the relevance of this issue takes place in the modern educational environment, because at present, high-quality teaching of disciplines cannot be carried out without the use of tools and capabilities that provide computer technology and the Internet. Information technologies, IT - a set of methods, production processes and software and hardware tools integrated for the purpose of collecting, processing, storing, distributing, displaying and using information in the interests of its users. Technologies that provide and support information processes, that is, the

processes of searching, collecting, transmitting, storing, accumulating, replicating information and procedures for accessing it.

Since outdated methods and teaching aids do not meet current requirements and are not subject to the trends of the rapid development of scientific and technological progress, this encourages the introduction of innovative teaching methods and the use and adaptation of these technologies in the educational process. This problem is especially acute in the formation of professional skills and abilities, since for their more effective assimilation, the educational process requires the use of a large number of visual materials and interactive tools, which in turn positively contribute to improving the achievement of the educational goal.

Teaching a foreign language is based on the exchange of information and communication. Distance learning forces to reduce the duration of the lesson, to conduct classes at a more intense pace, but at the same time leads to increased initiative and autonomy of students. New technologies have taken a central place in the teaching of foreign languages, as they allow critical and creative learning. Appropriate use of technology, digital resources and social media promotes communication, intercultural competence and language

learning across geographic and cultural boundaries. During the period of self-isolation, teachers took an active part in the innovation process and the development of new forms of educational relations with students. Learning is based on six main principles: Time management, space management, new educational relationships, linguistic challenges, new learning environments, and student motivation.

The vast field of learning foreign languages with the help of new technologies has received maximum development in recent decades. A growing range of modern technologies and web resources make it easier to gather information, collaborate and communicate. This allows students to independently use digital technologies in accordance with individual needs in learning foreign languages, but also creates the risk of negative consequences due to the abundance of offers. Despite the large selection of sites, not all of them are of high quality and worthy of attention. The modern and authentic nature of the materials is not a guarantee of their effective and reasonable implementation in the process of teaching a foreign language. The teacher faces great difficulties in choosing an adequate site and must carefully consider his goals, since the unsystematic use of Internet resources is unlikely to give the desired result, as well as provide students with the necessary support.

Every year, the requirements for the level of foreign language training of specialists - graduates of non-linguistic universities are growing. In addition, there is the problem of lack of time for studying, the peculiarities of undergraduate and graduate programs and work programs, and, at the same time, a large amount of knowledge and skills that students who study a foreign language need to master and assimilate. In the period of information technology, distance learning is becoming increasingly popular, which to a certain extent allows solving the existing problem. The distance form of education is characterized by flexibility regarding the place and time of the organization of educational activities, allows you to make learning open and accessible. In addition, the Internet is a large medium for data storage, which increases the speed of transmission and receipt of information, and thus affects the quality of education.

To date, there are varieties of courses that are implemented entirely in a distance form, as well as educational programs and online platforms that combine different forms and in which online technologies perform an auxiliary function. The basis of blended learning is the integration of classroom work and distance learning, implemented on the basis of an electronic educational environment. This type of learning is most common in the process of teaching foreign languages.

The main motivation for research is the fact that today digital technologies are firmly integrated into our lives. Education is no exception. Digital learning technologies have enormous educational potential. It is necessary to test in a real educational context the ability to stimulate various types of speech activity and the possibility of organizing a contact and non-contact educational process in a new way. Such characteristics of digital technologies indicate that they are especially useful in the context of learning a foreign language.

The development of the Internet has radically changed the approach to learning. Attending couples in a higher education institution became unnecessary, as well as moving from one's own home to another city in order to receive higher education. Online learning successfully copes with this task today - it is enough to have a computer, laptop, tablet and an Internet connection.

The above abstracts only confirm the relevance of the chosen topic, especially when the world has already entered into Industry 4.0. The main purpose of the study is to determine the features of the influence of digital technologies on the system of learning a foreign language. To achieve this goal, we have formed a functional model that demonstrates the process of learning foreign languages through the use of modern digital technologies. To form this functional model in the "Methodology" section, we formed the most effective methods of digital technologies, which in the next section "Results" became the basis for building this model. This model shows the algorithm for using the most successful and effective digital technologies in the process of learning a foreign language.

2. LITERATURE REVIEW

Analysing modern scientific and practical literature, we see that most scientists [1-3] believe that the use of digital technologies for learning a foreign language is not limited to a certain age group. Therefore, teachers are increasingly using these technologies in their activities. Teachers with experience in working with computers seek to interest students in the "digital game", creating favourable opportunities for learning a foreign language through the use of computer games in the educational process or digital game-based learning. It is advisable to use digital technologies in the learning process when organizing such language types of educational activities as: Oral practice, the formation of reading and writing skills. These technologies are especially effective when they are integrated with project-based language teaching technology, since in this case the language can be learned in a natural way through the use of thematic learning activities and various academic disciplines.

We agree with this thesis and believe that there are no restrictions for learning foreign languages. That is why our study has no age restrictions.

Also, most scientists [4, 5] note that digital technologies, especially at the first stages of education, cannot give the expected effect without the support of the educational process by the teacher, since such technologies are only teaching aids. The computer and digital technologies in the educational process is not an electronic teacher, not a substitute or analogue of a teacher, but a tool that enhances and expands the possibilities of teaching.

In our opinion, digital technologies remain a tool to achieve the desired socio-economic effect.

As noted by some scientific works of leading experts [6, 7], the use of digital technologies in teaching foreign languages contributes to the modernization of education and the improvement of the quality of education. The use of information technology is possible not only in the course of special integrated, but also ordinary classes in a foreign language at different levels of students' education. The introduction of digital technologies in the context of a traditional lesson makes the learning process more interesting, varied, and intense. We believe that this is a true statement and should be taken into account during our own analysis.

As noted by Li and Rivera [8, 9], the most difficult task for a modern teacher is to simplify the process of learning foreign languages for students. That is, in the system of learning foreign languages it is difficult to make it easier for someone. The paradox only increases the importance of digital

technologies that will help in this.

Some scientists note [10-13] that teachers of foreign languages, first of all, should assess the pedagogical significance of the use of digital technologies, which will make it possible to make a decision regarding the use of certain digital tools and educational materials in pedagogical activities.

As most scientists note [1-5], global trends in the development of both education and management of educational institutions, aimed at the transition to digital transformation. This means that all educational, scientific, managerial and other processes of higher education must be completely transferred to the digital environment. Without digital transformation, an institution of higher education cannot effectively organize a high-quality educational process and remote work of its departments with documents, cannot function normally in a competitive environment, which negatively affects students, teachers, and employees. Traditional approaches to automating the activities of educational institutions have lost their effectiveness and can no longer meet modern requirements. Automated systems of training, management, accounting not only do not solve all problems, they also divide the information space into separate cells, in accordance with those functional tasks for which this or that information is needed. Usually these are disparate tools that are not combined into a single system for solving functional problems. And, of course, such an approach does not allow to effectively implement digitalization projects, does not allow creating a unified system for building digital institutions. We need new approaches, new concepts of digital transformation of higher education. Approaches that allow you to combine all the processes of creating and using software and information tools to build digital universities and improve the system of learning foreign languages. Therefore, an urgent scientific task arises, which is to develop models for the digitalization of higher education based on the combination of all functions, procedures and information bases into a single concentric information technology for the digital transformation of the educational activities of learning foreign languages.

Digital texts are firmly included in the teaching of a foreign language in universities and universities. Textbooks, exams, worksheets, presentations - all this is systematically used in teaching. The advantages of digital materials over conventional printed materials are enormous: Easier to distribute, easier to copy, save space, and transfer quickly [1-5].

Publishing due to the scientific achievement of many scientists, we understand how important it is today to study the problems of learning foreign languages and therefore, in modern conditions, it is necessary to present a model of the influence of digital technologies on this process. Our study will differ from the previous ones, and its results may be valuable for theoretical and methodological analysis.

3. METHODOLOGY

Our study applies a number of methods that form the methodology of the entire article. In general, these are methods of analysis, synthesis and systematization of information and literature. Methods of an abstract-logical nature in the formation of relevant conclusions based on the results of the study. And it is also a functional modelling method for forming a model of a foreign language learning system

through the use of digital technologies.

The first stage of modelling is to determine the basic parameters of the model through the application of our methodology. First of all, you should understand the main goal. In our case, this is an effective study of foreign languages. Let's denote this as T_0 . Therefore, to achieve T_0 , it is necessary to perform a number of processes T_n , taking into account modern digital technologies (Table 1).

Table 1. Basic processes of functional model

Mathematical notation	Process
T_0	Effective study of foreign languages
T_1	Distance learning through the use of modern technologies
T_2	Use of digital gaming technologies
T_3	Application of the remote design method
T_4	Formation of electronic libraries on the site and in the cloud
T_5	Online performance monitoring

Functional modelling and graphical representation of the results is ideal for forming an information basis for achieving goals. It allows you to show how to achieve what you want.

It should be noted that the main purpose of modelling is a graphical representation of the process of learning foreign languages through the possibilities of using digital technologies [2]. The target audience of the model can be teachers of foreign languages. The software implies the use of an application program for constructing vector diagrams.

4. RESULTS OF RESEARCH

So, the first stage of the presentation is how the input elements allow you to get the desired result. Here, through the application of the Black Box method, we can represent this graphically. It should be noted that in our case, the input elements are financial and material-organizational resources (Figure 2).

As a result, we will get two desired effects: Improving the availability of learning foreign languages and the flexibility of its system.

It should be noted that when using digital technologies for the system of learning foreign languages, it is important to follow a number of rules and models that exist in society. You must not violate applicable laws and internal regulations of the educational institution, and you must follow the rules of existing learning models. The opinion and approval of the management of the educational institution is also important.

The use of digital technologies is considered one of the promising areas in the field of education. It is very difficult to imagine the learning process without the use of digital technologies. Traditional teaching methods can be successfully combined with the use of digital technologies, and distance learning is literally based on the use of cloud-based systems and cloud services.

The digitalization of the educational process involves the implementation of new digital technical means, the improvement of teaching methods and digital technologies, and the involvement of modern computer and telecommunications equipment and digital software in the educational process. The introduction and application of

digital technologies in teaching foreign languages should be carried out as a didactically substantiated, scientifically organized, controlled system process.

The use of modern digital technologies in teaching foreign languages patronizes the provision of a quality educational process and education. Obviously, such a specific type of education as the study of foreign languages has high expectations for both the teacher and the student. In the

modern model, the teacher ceases to be the main source of knowledge and information, but takes on the role of a leader, whose main task is to support the student in independent and active mastering of knowledge and skills. Given the above-mentioned opportunities and conditions for distance education, it can be concluded that teaching a foreign language with the support of digital technologies creates the potential for the development of various types of language education.

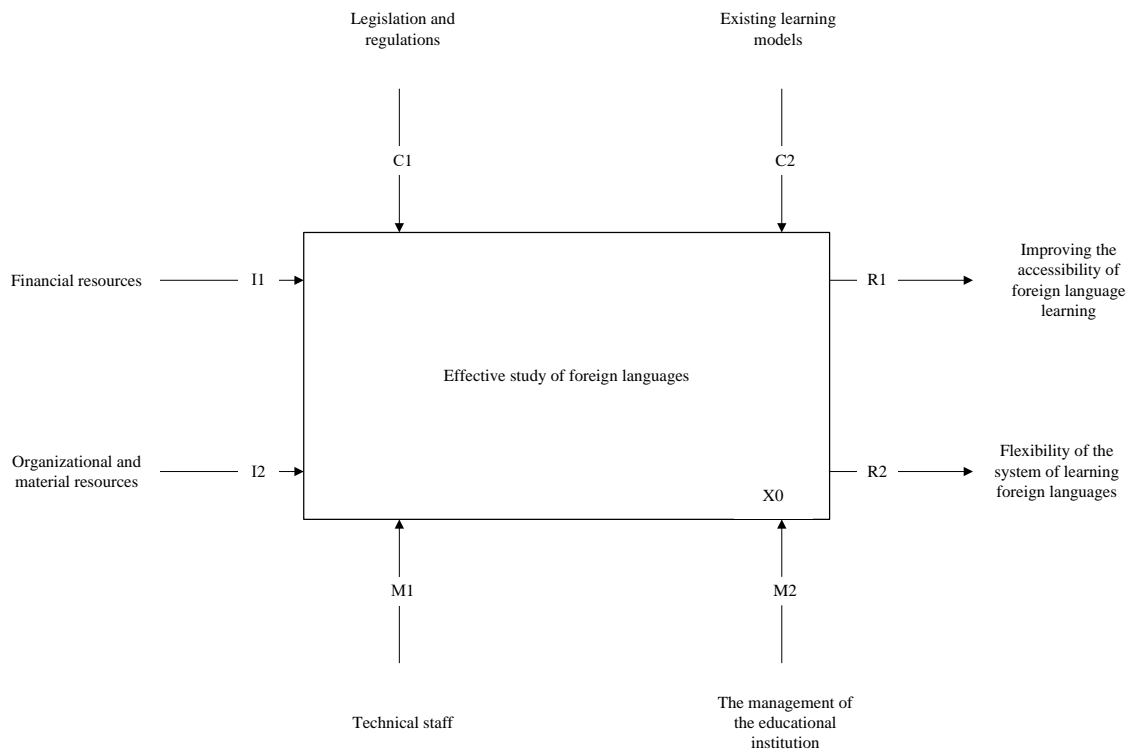


Figure 1. Black box model regarding elements to promote achievement T_0

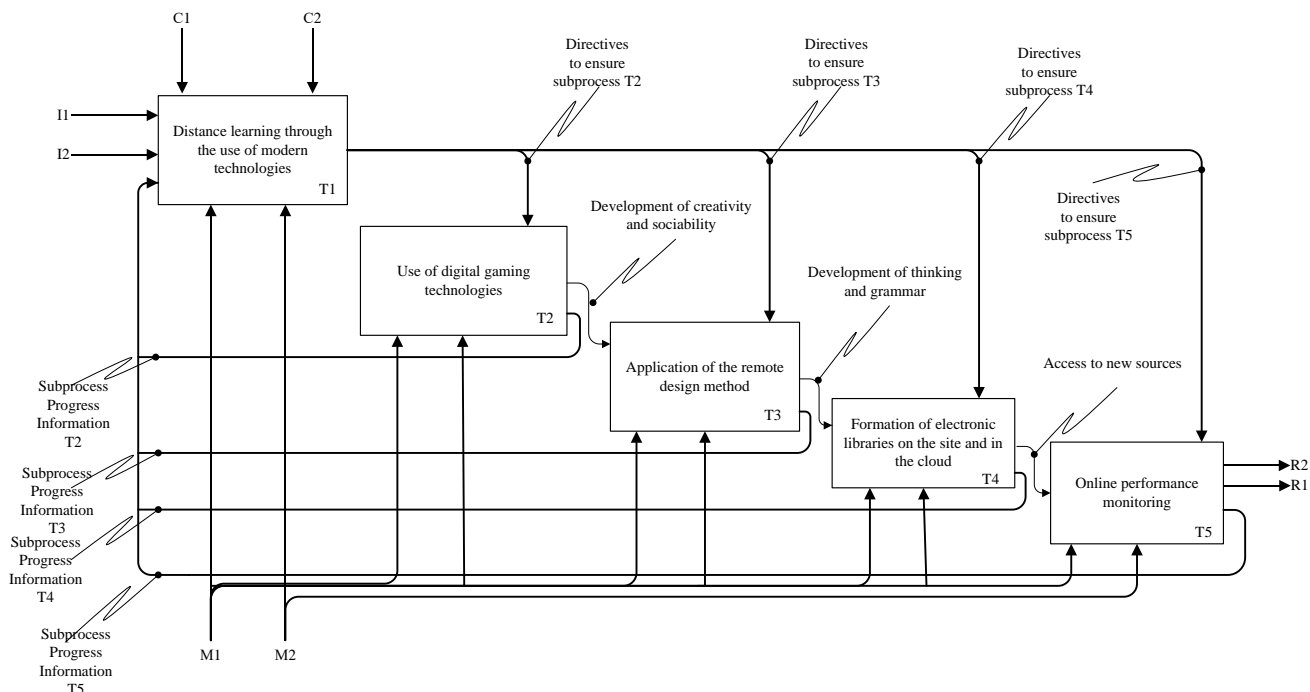


Figure 2. The model of learning foreign languages through the possibilities of using digital technologies

Therefore, the last stage of our study will be the formation of a model for the effectiveness of learning foreign languages

through the use of digital technologies (Figure 2). The model itself includes not only the main sub-processes to achieve T_0 ,

but also the above-mentioned elements, which were presented in Figure 1. That is, we strive to present our model as an integral organism with its main and auxiliary parts that contribute to the achievement of the desired socio-economic effect.

So, let's consider in detail each process that allows us to achieve the main goal of the model of learning foreign languages through the possibilities of using digital technologies:

T₁- Distance learning through the use of modern technologies. A distance form of education is an educational process that takes place at a distance, which is the main factor that distinguishes this form from the traditional one and ensures its flexibility. It is characterized by the absence of constant direct contact between the participants, but at the same time, such a learning format is interactive, since it allows you to maintain regular interaction between the teacher and students, both in writing and orally, which is especially important for teaching students a foreign language. Today, there are varieties of courses that are implemented entirely in a distance form, as well as educational programs and online platforms that combine different forms and in which online technologies perform an auxiliary function. The basis of blended learning is the integration of classroom work and distance learning, implemented on the basis of an electronic educational environment.

T₂- Use of digital gaming technologies. Digital game technologies form the so-called simulation-game approach in the classroom in a foreign language, which gives the educational and cognitive activity of students an impetus to creativity, develops the acquired experience, ensures concentration, and enhances learning activities. During the implementation of the game, the interaction of the parties taking a role in it is constantly taking place. The grid means to compete, to come into contact with others, because it is known that in a distance learning environment, students are often influenced by distractions. These contacts are realized through a dialogue between the participants of the game, they create conditions for professional and creative self-expression. The use of simulation types of games in the educational process stimulates the mental activity of students, affects the creative assimilation of subject knowledge, skills and abilities, and contributes to the development of organizational skills. Digital video games are closely related to gamification, which is one of the principles of modern education, i.e., organization of the educational process based on the principles of the game, the formation of a community for the development of educational content, the participants of which help each other, compete and motivate each other. Thanks to digital media tools, which include video games, learning is automated based on the connection of educational content with data on the progress of the student, as a result of which the basic principles of digital education are implemented: Its openness, flexibility, individualization and continuity.

T₃- Application of the remote design method. In our opinion, the use of the project methodology in the context of distance learning will help create motivation for learning, provide conditions for the formation of cognitive research skills and independent work, the acquisition of skills to analyse, generalize, argue, present the material found during work. The implementation of projects creates conditions for the development of critical thinking, allows students to show their individuality, and forms the ability for creative search.

T₄- Formation of electronic libraries on the site and in the

cloud. It is electronic libraries in various forms of presentation that accumulate in their funds modern information resources created by teachers for the study of foreign languages. Therefore, a high-quality base plays a special role in expanding access to the latest achievements, ensuring the provision of information resources in electronic form and remote access to them via the Internet at any time. In order to have a positive result in learning a foreign language, students need: The ability to search, work freely with information, data and navigate various information resources, be able to use Internet search engines.

T₅- Online performance monitoring. Ease and accessibility in managing and monitoring student achievements using educational technologies that make it easy to list and manage student groups, send messages and evaluate the quality of their knowledge using tests and exams. Today, many tasks of an administrative nature are solved thanks to online educational platforms that offer countless functions tailored to the needs of educational centres. Not only do they give schools better and more efficient control over account activation, automated messaging, but also performs important student monitoring tasks with dedicated software.

Digitalization remains a key trend covering various spheres of human life and, above all, education. The use of digital tools is possible not only in the educational process, but also in the management of an educational institution, in particular the general secondary. At the same time, the introduction of such technologies requires a systematic approach, taking into account the functioning of an institution of general secondary education as an organization. The solution of this problem is possible due to the modelling of the educational institution management system using digital educational technologies, which will cover such elements of the system as the management process, communications and decision-making mechanism.

Most of the studies of other scientists [6-8] were aimed at how the student himself can improve the system of learning foreign languages. We offer a model through the prism of the introduction of modern digital technologies.

In our opinion, this model has significant advantages along with static and established methods of teaching foreign languages. First of all, this model is plastic and can be modified in the context of individual elements without losing its functionality and efficiency. Another practical advantage is the fact that if there is a need to clarify a particular stage or process, this model makes it possible to create new sublevels of the model, which also have a branched structure and will facilitate the process of learning foreign languages. The implementation of such a model will allow general secondary education institutions to save time and money, increase performance, and promote sustainable development.

5. DISCUSSIONS

The advantages of learning a foreign language with the help of digital technologies is that in the era of the rapid spread of digital technologies in all spheres of society, university graduates must have the skills and abilities that allow them to acquire knowledge and use it to successfully solve emerging problems. Moreover, the use of digital technologies greatly facilitates the learning of a foreign language and speeds up the process. The use of computer technology ensures the novelty of learning, makes the learning process interesting,

corresponds to modern trends and forms motivation for self-development. The use of multimedia technology with visualization contributes to the development of cognitive thinking, creativity and mental activity of students, and also has a positive effect on their psychological and emotional state.

Discussing the results of the study, it should be emphasized once again that the functional model that we have developed of the features of the influence of modern digital technologies on the study of a foreign language is currently exclusively theoretical in nature and is intended to demonstrate the system of learning foreign languages through the use of the latest technologies in the conditions of Industry 4.0 and the post-pandemic environment.

Most scientists, of course, in their works also did not ignore the issue of the impact of digital technologies on the study of foreign languages. This aspect is too important to be overlooked. Our study has a number of differences and its results differ from similar ones. Some researchers, when analysing the system of learning foreign languages, focus more on the digitalization of the education system itself. Noting that the digitalization of education must be understood as the correct use of new digital technologies, the selection of innovative pedagogical technologies that contribute to the achievement of the main goal of education - the formation of a personality that realizes itself in the conditions of a modern digital society [14-16].

There are also a number of studies [17, 18], which are aimed at analysing digital literacy and the environment for better preparation when learning foreign languages. In our opinion, digital literacy is more than understanding the features of the device and disseminating digital information. An important component of it should be an understanding of the cultural context of the Internet environment, the ability to communicate in online communities, create and distribute content, and self-develop. That is why we did not focus on this in our study.

The results of our study are aimed at demonstrating the process of the influence of digital technologies on improving the efficiency of digital technologies. We have a positive attitude towards the continuous digitalization of the education system, however, in our opinion; the issue of learning foreign languages should be highlighted in the process of conducting research in order to better understand the significance of the impact of modern technologies.

A number of studies [18-22] have proven that as a result of using digital technologies, students develop the necessary competencies (language, speech, sociolinguistic, communicative, and others) in the field of a foreign language. Digital technologies are also aimed at developing important skills for independent work and research activities, which contributes to the acquisition of the student's professional competence as a result of training. We agree with the same opinion and believe that digital technologies have a positive impact on the system of learning foreign languages.

6. CONCLUSIONS

Summing up, we would like to note that today there is a so-called generation with a head down (Generation Kopf Unten) as the Germans call today's youth because of their excessive love for smartphones. Experienced users of a wide variety of gadgets and connoisseurs of the latest technical innovations want to use them freely everywhere and training is no exception. The most modern computers in miniature may not

be an irritant, but a reliable assistant and support in a foreign language class. The latest Internet technologies, as well as the constantly growing number of modern digital media resources that are carriers of educational information, make the lesson more flexible, the learning process more autonomous. In real life conditions, when the number of classroom lessons for learning a (second) foreign language decreases and, accordingly, the number of hours for self-study increases, this has become an impetus for the creation of such modern forms of education as distance learning, online or E-learning, which have become possible quality digital technology.

The use of modern information technologies in the study of a foreign language is an extremely relevant and at the same time problematic issue. In the methodology of teaching foreign languages, this problem has been developed since the early 80s of the XX century. Today, the use of information technology is one of the conditions for the successful learning of a foreign language. Therefore, a foreign language teacher, in addition to thorough professional training, possession of modern communicative methods, using information technology at all stages of education is a requirement of the time. Modern information technologies should be an effective tool that will facilitate the assimilation of knowledge, make learning interactive, communicatively oriented, interesting, visual, and individual. In this environment, the future generation should not only communicate, but also build professional relationships, position their interests and represent themselves. That is why in recent years great importance is attached to the informatization of the education system.

Summing up, it should be noted that we tried to cover the previous scientific research and practical literature [1-20] as extensively as possible, but there is room for growth and in the future we should also consider new visions on this topic.

Regarding the results of our study, we can highlight a number of positive elements. Based on the results of the study, a functional model was formed that demonstrates the process of learning foreign languages through the use of modern digital technologies. The study has limitations and is associated with the impossibility of applying the proposed model outside of one country and all languages. Further research needs to expand the capabilities of the functional model and form elements of flexibility in it for use in the study of foreign languages that are very complex in their structure.

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