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Distance Learning Technologies in Foreign Language Teaching: Assuring Education Quality

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Abstract: *The relevance of this study stems from Russia's war against Ukraine, along with the threat of the spread of COVID-19, necessitating an urgent transition to distance learning. This shift serves as a crucial measure to mitigate risks that endanger the lives and health of students. All face-to-face lessons (lectures, seminars, and laboratory work) are being moved to the virtual learning environment under these circumstances. Since the organisation of distance learning differs significantly from traditional face-to-face education, teachers must radically adapt the learning process, considering the neuropsychological and neuropedagogical aspects of learning foreign languages remotely. The article also explores the introduction of distance learning technologies for teaching foreign languages in educational institutions. It reviews the experiences of international researchers who use electronic educational resources, as well as discusses the current stance of Ukraine's educational institutions on distance learning technologies in foreign language teaching. Finally, the article outlines the neuropsychological and neuropedagogical aspects of foreign language distance learning and examines the experience of organising blended learning for foreign languages based on e-learning resources. The conclusions of the article are intended for educators and curriculum developers.*

Keywords: *digital services; teacher competence; innovative methods; distance learning technologies (DLT); online learning.*

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1. Introduction

It is indisputable that the current global and rapid advancement of technology, coupled with the proliferation of knowledge across various fields of human activity, significantly influences the evolution of today's education. Satisfying learners' knowledge demands necessitates more than just conventional educational environments.

Many applicants for education, often studying at several educational institutions simultaneously, do not have enough time to study the necessary educational materials, attend lectures and seminars, read additional literature, and prepare for tests and exams in time. Another serious problem in group learning is the inability of some students to master new learning materials in the presence of other classmates or groupmates. These difficulties may arise from psychological and personal factors, such as the fear of appearing incapable or unintelligent and an underdeveloped ability to process information quickly. Such students often find it challenging to follow the material during regular classes, requiring significant effort to comprehend and absorb the content. One potential solution for addressing this issue is to adopt a personalised approach. Thus, dedicating time to one-on-one sessions in foreign language classes is essential for these students.

Moreover, within the framework of the distance learning process, teachers must consider that individual work should not compromise the learning experience of other students who may grasp the material more easily and swiftly. To address these challenges, today's pedagogy has been increasingly harnessing the potential of information technology, specifically through distance learning. Distance learning enables education to take place when teachers and students are physically separated. However, the critical challenge lies in the effective organisation of the distance learning process. Given that distance learning is a relatively new approach in many educational institutions, the task of structuring and implementing the educational process using distance learning technologies is a true test of teachers' knowledge and competence in foreign language instruction. The difficulties encountered in the field of distance learning are multifaceted. In addition to presenting lexical, grammatical, and interdisciplinary content in a foreign language, teachers must also ensure that students achieve the necessary proficiency standards.

The digitalisation of the educational process in distance learning has emerged as a key focus in the national and international discourse (Vinnikova, 2021). Novachenko (2023) has dedicated her work to the integration of distance learning components. Holovan, Horlichenko, and Drozdov (2024) offer different viewpoints on the definition of distance learning in their article. Bahji, El Alami, and Lefdaoui (2015) outlined the advantages and drawbacks of distance learning in higher education. Chaudhry, Paquibut, and Islam (2021) studied teachers' perspectives regarding distance learning in higher education institutions. Cook, Owston, and Garrison (2004) have examined the challenges associated with blended and distance learning in foreign countries.

It follows that this particular theme is not new in available studies on the use of the fundamentals of neuropedagogy and neurodidactics in foreign language learning (Khyzhniak, 2010; Liashenko, 2015; McCarthy, 2016; Peha, 2011). The formulated recommendations primarily target university and high school students, yet neuropedagogy could yield more significant outcomes in the context of teaching foreign languages to primary school children.

The aim of the article is, firstly, to explore the nature of distance learning in ensuring the quality of education; secondly, to define the forms of distance learning technologies in linguistic education for foreign language teaching; thirdly, to describe the competencies required of teachers when using these technologies in language instruction; fourthly, to analyse and methodologically present the potential of distance learning technologies in foreign language acquisition and the organisation of students' independent work; to examine the neuropsychological and neuropedagogical aspects of distance language learning; and to investigate the integration of artificial intelligence into the language learning process and its effects on cognitive learning processes.

The research methodology involves studying the specifics and possibilities of using distance learning technologies in foreign language instruction and organising independent student work to

address didactic language training tasks. It seeks to harmoniously combine classical traditional methods with the results of creative exploration, applying progressive non-standard distance learning technologies and original didactic ideas and forms to facilitate the educational process. The goal is to develop a virtual educational learning environment in simulating the distance learning process, primarily in creating an organisational and methodological system that offers educational and communicative strategies for developing communicative competence in foreign language teaching, as well as for organising independent work for students.

Research methods include critical analysis and synthesis of scientific and methodological sources, systemic analysis, description, forecasting, generalisation, induction, deduction, the transductive method, and empirical research on the effectiveness of distance learning formats. The study sample consists of 30 students from Taras Shevchenko National University of Kyiv. The article presents the summarised results of students' satisfaction and academic performance.

2. Neuropsychological Aspects of Learning Foreign Languages Remotely

The requirements of today's school education often outpace the pace of students' brain development. Early education significantly aggravates problems in learning. This is especially true for boys, whose maturation rates of higher mental functions are slower than those of girls. When a child goes to the first grade, their right hemisphere is developed, and the left hemisphere is actualised only until the age of 9. In this regard, distance learning for primary school students should be conducted in a way that is natural for them in the right hemisphere, namely, through creativity, images, positive emotions, movement, space, rhythm, and sensory perceptions. Unfortunately, during distance learning, it is customary to sit still, not move at the monitor, learn letters and numbers linearly, read and write in the context, i.e., in a left-hemispheric way. Accordingly, distance learning very soon turns into coaching and training of the child, which inevitably leads to decreased motivation, stress, and neurosis.

In terms of teaching style, one can say that a school teacher tends to be left-hemispheric in teaching foreign languages, while a teacher of additional education tends to be right-hemispheric. The key issue is not merely identifying the individual differences in children with dominant right- and left-brain hemispheres (that is just the tip of the iceberg). Instead, it is about coordinating the efforts of all participants in the educational process based on the principles of neuropedagogy. This approach can significantly enhance the effectiveness of foreign language teaching (Chaudhry, Paquibut, & Islam, 2021).

This problem is multifaceted and lies in so many different planes that it is necessary to approach its solution from different sides, referring in their practice to the results of interdisciplinary scientific research and consulting with specialists in related areas, which is sometimes not possible for a teacher. Firstly, a distance learning teacher needs the support of parents, who often perceive any innovative attempts of a teacher to help their children in the opposite direction, with an extreme degree of distrust or belittling of their efforts with complete indifference, which is even worse. Such attitudes often replace inspiration and hard work with complete emotional burnout and a realisation of their uselessness to society.

During distance learning, it is relevant to take into account neuropsychological and neurophysiological peculiarities of a child's brain maturation during their foreign language learning to dispel unnecessary myths concerning their early mastering of formalistic methods aimed at left-hemispheric education. All of these measures will contribute to establishing an optimal educational environment for the students. In this environment, all parties involved are motivated to participate actively. Even if one of the participants in this process faces challenges, the entire system remains stable, as the students, parents, teachers, and other professionals working with the child experience mutual support (Chaudhry, Paquibut, & Islam, 2021).

Unfortunately, in practice, it is very difficult, but still possible, to coordinate the efforts of all participants in the process. Most of today's teachers are so resigned to the hopelessness of the situation that they do not even try to find out for themselves the reasons for their pedagogical

failures and somehow correct the situation. It seems that the teacher sincerely wants to teach today's students, and the student sincerely wants to learn, but something goes wrong. Therefore, it is necessary to create such a mutually supportive educational environment solely based on neuropedagogy.

One of the primary objectives of neuropedagogy is to establish relationships and interactions between key participants in the distance learning process, guided by the fundamental principles of a person-centred approach to education. These principles involve recognising individuals as active participants in their development, having trust in human nature, and believing in their capacity for constructive, independent, and responsible self-development. A personalised approach to learning further facilitates this approach.

According to the principles of brain function, the most effective way to master a foreign language in the early stages of distance learning follows the "mother method": starting with auditory perception, progressing to speaking, and then moving on to learning letters and grammar. However, there is a growing trend, particularly in extracurricular school programmes, where preschoolers are often made to memorise words and letters, sometimes even writing down translations in their native language. This approach contradicts brain development laws and leads to superficial knowledge, often resulting in a lack of motivation to learn a foreign language. By the age of 10-12, the underdeveloped corpus callosum makes it difficult for information to transfer between the brain's hemispheres, so translating words poses a challenge for younger students. Preschoolers, on the other hand, do not need translation at all. For them, visualisation can be used, where the foreign word first triggers an image, and only then is the lexical equivalent in their native language introduced.

Even though neuropsychological methods for supporting distance foreign language learning have undergone substantial testing and trials, they have not yet found widespread application. These methods take into account individual lateral profile characteristics, dominant modalities, primary memory types, temperament, gender differences, and brain organisation. Despite their potential, they have not been broadly implemented in general education schools or supplementary education systems.

To overcome the current situation and enhance the efficiency of teaching foreign languages to schoolchildren, it is essential to promote the study of neuropedagogy and neurodidactics among school and distance learning teachers. This can be achieved by enhancing their qualifications in these fields and by developing guidelines for tailored instruction for children with diverse learning styles. Additionally, it is crucial to educate parents about the significance of considering their child's neuropsychological characteristics during the distance learning process.

Lucas-Oliva, Toledo-Vega, and Núñez-Román (2022) suggest that to bridge the gap between theoretical advancements in neuropedagogy and the practical application of neurodidactics in distance foreign language learning, it is essential to involve foreign language faculty methodologists. These experts could transfer the necessary knowledge to the next generation of specialists. Developing a set of exercises to help students with a pronounced semi-dominant hemisphere to better process material is particularly urgent today. Additionally, at the senior stages of education for middle and high school students, it is crucial to create opportunities for mastering cognitive strategies that are opposite to their natural thinking style, which will strengthen their interhemispheric connections.

3. The Essence of Distance Learning in Assuring Education Quality

When examining the terminology related to this field, it becomes crucial to identify the concepts that reveal the nature of distance learning. E-learning, which involves the use of information and communication technologies, has become widely prevalent in today's methodology of foreign language instruction. It has significantly transformed the approach to designing the educational process.

Rivera (2019) explains that the concept of e-learning evolves alongside synchronous and asynchronous internet communication technologies, which help optimise and enhance the learning process while developing skills for working with new technologies. The versatility of ICTs enables the accommodation of almost any student's information needs and stimulates the development of creative and research abilities, laying the groundwork for the formation of personal professionalism.

Distance learning, in this context, refers to an open mode of interaction between teachers and students conducted remotely and facilitated through dedicated electronic educational platforms. It embodies the unique characteristics of the educational process, encompassing its structural elements, including goals, objectives, approaches, principles, learning materials, and organisational formats, as well as the methods and tools for facilitating learning.

In methodological terms, this format of learning is characterised by a high level of student autonomy. Many students choose distance learning because of the convenience, flexibility, and adaptability of the learning process to their characteristics and needs. Researchers see distance learning as the result of innovation in education and the possibility of lifelong learning.

Also, the term "online learning" is most often used in the current scientific and methodological literature.

The concept of online learning does not replace distance learning; rather, it complements it by specifying the methods of acquiring knowledge and the forms of communication with the teacher through synchronous Internet communication technologies. In this context, online learning is often equated with e-learning since both involve the use of ICT for educational and instructional purposes (Lee, Fong, & Gordon, 2013).

Sanjaya (2023) explains that online learning includes live or pre-recorded video lectures, interactive workshops, online tests and quizzes, and feedback exchanges among participants. The format most commonly used by teachers can be described as online learning through distance learning technologies.

Distance learning technologies provide a targeted organisation of learning and cognitive activities of students at the expense of current ICTs. Under these conditions, the involvement of the participants in the educational process is indirect.

Training can be conducted at a time that is convenient for each participant, aligning with their preferred pace of information absorption, individual interests, and needs. Given the characteristics of the training organisation mentioned above, distance learning technologies serve as an effective tool for implementing a person-centred approach.

4. Types of Distance Learning Technologies in Foreign Language Education

One of the first types of distance learning technologies is considered to be web-teaching, the essence of which was reduced to conducting practice-oriented training sessions (seminars, conferences, business games, laboratory work, etc.) using telecommunications and the Internet. Web exercises were complemented by discussions on dedicated forums, involving multi-day tasks and asynchronous communication among the learners.

Tiwari (2024) highlights that, in addition to web exercises, chat-based techniques were introduced as a more effective approach to organising distance learning. Unlike forums, chat technology allows all learners to participate in the online discussion simultaneously. These methods were replaced by teleconferencing, with students being informed in advance via email. Teleconferences were conducted in two modes: online and offline. In the online mode, participants interact with the teacher in real time, receiving information and engaging in discussions and tasks. The offline mode involves viewing a prerecorded video with the teacher.

In this learning organisation, students develop consistent and automated skills by completing practical assignments, particularly in phonetics, where they listen to and replicate phonetic exercises after the instructor.

Another experimental form of learning that emerged is telepresence, which revolves around the concept of substituting the instructor with a virtual robot (bot) that performs teaching functions.

This virtual robot delivers lectures, poses questions, and conducts practical sessions, creating the impression for students that they are interacting with a “live” teacher.

Case technologies constitute an integrated system of distance learning, enabling students to explore multimedia and e-learning resources. Each case is a complete educational and methodical complex consisting of lectures, seminars, and practical training. All cases are closely connected and form a complete modular training course.

Alomari, Al-Samarraie, and Yousef (2024) claim that network technologies involve the use of specialised computer programs and electronic publications in the educational process. Typically, information and educational resources are accessible via the local network of the educational institution.

Today’s forms of learning organisation with the help of preschools provide for the use of distance education platforms, such as Moodle, Google Classroom, MyLMS, YaClass, and others.

These platforms integrate all fundamental ICT tools and are fully equipped for immediate use. In addition to distance education platforms, it is important to highlight the significance of Web 2.0 technologies (such as blogs, wikis, and podcasts) and social Internet services (including Facebook, Instagram, and Twitter).

Synchronous Internet communication means are also extensively utilised, enabling video calls and online video conferencing through platforms such as Zoom, WhatsApp, Skype, Facebook Messenger, Viber Messenger, and others.

The student’s progress is assessed through various forms of online testing: a) lecture testing, which follows each lecture in a module; b) module testing, used to evaluate knowledge within a specific module; c) individual online training, focused on solving practical issues, combining test tasks from various modules; and d) control testing, conducted upon completing the study of a discipline or course (Osguthorpe & Graham, 2003).

Wilson (2024) notes that distance learning platforms already include built-in tools for creating online tests. Notably, electronic resources such as Quizizz and Google Forms allow for the creation of various types of tests. A key advantage of using these resources is the automation of result checking and grading, eliminating the need for teacher involvement. Based on the test results, the teacher can generate statistical data for each student or group in MS Excel format.

Zeng and Luo (2023) highlight that blended and distance learning are two contemporary educational approaches, each with unique features, benefits, and limitations. Table 1 presents a comparative analysis of these learning formats.

Table 1. A comparison of distance and blended learning formats

Criterion	Blended Learning	Distance Learning
Definition	Integrates in-person instruction with online components, combining the advantages of both methods.	Entirely conducted in an online environment without the need for physical presence in a classroom.
Social Interaction	Facilitates direct communication between students and instructors during face-to-face sessions, promoting social skill development.	Limited to virtual interactions, which may reduce engagement and affect communication skills.
Flexibility	Balances a fixed schedule for in-person classes with the flexibility of online learning, allowing students some control over their time.	Highly flexible in terms of study time and location, making it ideal for those managing education alongside work or other commitments.
Technical Requirements	Requires internet access and digital devices for online learning, along with physical attendance at an institution for in-person sessions.	Depends entirely on a stable internet connection and appropriate digital tools for participation in virtual classes.

Motivation and Self-Discipline	In-person sessions provide external structure and support, enhancing student motivation. Online components require independent learning skills.	Strong self-discipline and motivation are crucial, as the absence of direct supervision may lead to procrastination and lower learning efficiency.
Access to Resources	Offers both physical resources (libraries, laboratories) and online materials, broadening learning opportunities.	Relies exclusively on digital resources, which may limit access to specialised equipment necessary for hands-on training.
Knowledge Assessment	Combines traditional in-person exams with online assessments, enabling a comprehensive evaluation of student performance.	Primarily based on online tests and assignments, with potential challenges related to academic integrity and identity verification.

Source: the authors' own conception

The decision between blended and distance learning depends on students' individual needs, self-learning abilities, technical resources, and the nature of the academic programme. Blended learning strikes a balance between in-person interaction and flexibility, whereas distance learning offers maximum independence in structuring the learning process.

5. Requirements for Teacher Competence in Using Distance Learning Technologies in Foreign Language Teaching

Today's distance learning technologies do not require special programming skills for teachers to create their online courses. Most distance learning platforms have a user-friendly interface and do not generally cause difficulties for teachers when interacting with them.

When assessing a foreign language teacher's competence in using distance learning technologies, it is essential to emphasise the development of ICT skills.

The competence of a foreign language teacher is viewed as a construct, encompassing a combination of knowledge, abilities, skills, and experience.

According to these requirements, as noted by Muftah (2022), a foreign language teacher should possess the following knowledge and skills:

- A clear understanding of the values and principles of today's information society.
- Motivation to develop expertise in using distance learning technologies for foreign language instruction.
- Awareness of the methodological potential of integrating contemporary distance learning tools into language teaching.
- Proficiency in managing information flows, including processing, storing, and transmitting data through distance learning technologies.
- Adherence to information security protocols when working with digital learning platforms.
- Familiarity with advanced information and communication technologies, as well as electronic educational resources available online.
- Competence in automating the learning process and a fundamental understanding of distance education principles.
- The ability to establish effective communication and feedback channels among learners and educators.
- Proficiency in organising and supervising students' project-based learning and project management activities.
- Experience in conducting formative and summative assessments using online testing tools.

Thus, the educational system is currently experiencing significant qualitative changes, with new values emerging and traditional forms of education being reexamined. As foreign language

teachers continue their journey of self-development and professional growth, it is essential for them to actively embrace the use of distance learning technologies to enhance their teaching practices and meet the evolving demands of education.

6. The Potential of Distance Learning Technologies for Foreign Language Instruction and Facilitating Independent Student Work

When considering the unique aspects of distance learning for foreign languages, several key conditions should be taken into account when developing a teaching methodology: 1) the ability to systematically accumulate, edit, and store learning materials; 2) the opportunity for interpersonal communication between the teacher and students, as well as with foreign partners; 3) the ability for the teacher to monitor and control the learning process; 4) the flexibility for learners to choose the time and pace of their studies.

To optimise the effectiveness of distance learning, it is crucial to create a supportive environment that promotes independent language learning and self-assessment (Nerubasska & Maksymchuk, 2020; Nerubasska, Palshkov, & Maksymchuk, 2020).

The application of a systemic approach to the digitalisation of foreign language education has made it possible to examine the principles of this process across three levels: methodological-technological, systemic-integrative, and conceptual-strategic. The goal of implementing these principles is to establish a universal educational environment for foreign language learning.

At the methodological-technological level, the focus is on developing strategies and methods to master various aspects of a foreign language and different types of speech activities while integrating information and communication technologies to enhance skill development.

At the systemic-integrative level, technologies and teaching methods are merged within a unified electronic educational environment.

At the conceptual-strategic level, existing foreign language curricula are adapted to fit the new technological landscape.

Legault et al. (2019) highlight the following essential requirements for developing the information educational environment of foreign language learning to ensure continuous learning interaction throughout the process: a) interconnection of linguistic information resources; b) variety of information resources; c) inclusion of a linguistic portfolio in the student's overall learning process; d) creation of a methodological unit for the teacher; e) automation of the control and correction of learning outcomes; f) ability to update the resource with new information; and g) 7) integration of pedagogical technologies and proprietary methods.

They also highlight the methodological principles that govern foreign-language professional communication through the use of information and communication technologies. These principles include factors such as relevance, necessity, informativeness, reliability, dialogic interaction, interactivity, adaptability, user-friendly interfaces, complexity, multisensory engagement, and methodological support (Legault et al. 2019).

Guided by these requirements and principles, more and more universities are now beginning to implement distance learning technologies for teaching students a foreign language. This trend is also evident in foreign language teaching for specific purposes. Pedagogical practices are increasingly incorporating electronic reference and information systems into foreign language teaching for specialised fields. They are developing specialised electronic dictionaries to enhance foreign language vocabulary skills. Computer technology is being integrated into the teaching process, and computer innovations are becoming valuable tools in foreign language instruction. Information and communication technologies are being used to enhance and enrich the learning experience (Nerubasska & Maksymchuk, 2020).

Moodle is widely used for foreign language teaching as it allows one to organise independent work more productively. It has also shown its effectiveness in the implementation of feedback in the study of foreign languages.

Furthermore, the Moodle platform is internationally recognised, facilitating the creation and implementation of international projects in foreign language education. This system has also proven to be effective in developing distance learning courses for professionally oriented foreign language instruction.

The study assessing the effectiveness of distance learning formats included a sample of 30 students from the Taras Shevchenko National University of Kyiv. Table 2 summarises their satisfaction and academic performance.

Table 2. Evaluation of student satisfaction and academic achievement

Indicator	Average value	Standard deviation
Level of satisfaction with learning	3.8	0.6
Academic performance (GPA)	3.5	0.7

Source: the authors' own conception

The level of satisfaction with the learning experience was evaluated using a five-point scale, where 1 indicates very dissatisfied and 5 indicates very satisfied. Academic performance (GPA) was calculated on the same five-point scale.

The results reflect an overall positive perception of distance learning among students, as well as a satisfactory level of academic achievement. However, to conduct a more thorough analysis and identify potential areas for improvement, additional research with larger sample sizes and consideration of factors such as technical infrastructure, teaching methods, and individual student differences is necessary.

Therefore, distance learning technologies offer significant pedagogical potential in teaching foreign languages to students from various academic backgrounds. The optimal approach for delivering professionally oriented foreign language education is through a comprehensive digital environment in which students can comfortably engage and actively participate in the learning process alongside their peers. However, in cases where educational institutions or instructors lack the necessary resources to establish such a digital environment, a viable initial step could involve creating an electronic version of a foreign language textbook.

7. The Role of Artificial Intelligence in Language Learning and Its Impact on Cognitive Processes

Artificial intelligence (AI) has had a profound impact on language learning methods, offering innovative tools and approaches that enhance cognitive learning processes. Today, AI-based applications are designed to analyse students' individual needs, tailoring learning materials to their knowledge levels. This personalisation creates effective learning paths that improve the acquisition of new information. Furthermore, these systems offer real-time feedback, allowing students to address mistakes instantly.

The integration of chatbots into language learning allows students to practice their language skills through simulated conversations, promoting the development of communication abilities and boosting confidence in using the language. Research indicates that interacting with these bots can enhance understanding of grammatical structures and expand vocabulary (Ghaithi & Behforouz, 2024).

AI-driven speech recognition technologies help students refine their pronunciation and intonation. These tools analyse speech and provide suggestions for improvement, which is particularly beneficial for self-learners. The use of such technologies facilitates the accurate reproduction of sounds and improves overall speech quality (Novachenko, 2023).

Recent studies have shown that interaction with AI models such as ChatGPT influences users' lexical habits. This highlights AI's ability to shape language practices and cognitive learning processes (Zaiarna, Klavdich, & Yuzefovych, 2024).

AI can also automate repetitive tasks, such as data collection and analysis, allowing researchers to focus on more advanced cognitive activities, such as critical thinking and hypothesis generation. This boosts research efficiency and opens new opportunities for language learning.

Thus, integrating artificial intelligence into the language learning process enhances the quality of education. It also influences cognitive processes, leading to a deeper understanding and mastery of the language.

8. Conclusion

This article is significant for several key reasons. First, it studies the core of distance learning and its role in delivering quality education. Second, it identifies various forms of distance learning technologies in linguistic education, particularly in the context of foreign language instruction. Third, it outlines the essential skills required by teachers when using distance learning technologies in foreign language teaching. Finally, the article offers an in-depth analysis and methodological insights into the potential of distance learning technologies for teaching foreign languages and fostering independent student work.

The obvious advantages of distance learning technologies in terms of the availability of materials, ease of use, and the possibility of organising instructional time are beyond doubt. Nonetheless, relevant issues remain unaddressed, primarily the absence of comprehensive information on electronic educational resources, quality control, and the effective and purposeful methodological development of materials.

The integration of distance learning technologies in university-level foreign language instruction is still in its early stages. While most studies indicate the effectiveness of using electronic educational resources in the educational process, there is still a lack of definitive evidence demonstrating significant improvements in the quality of education compared to traditional teaching methods. An essential factor in the successful implementation of e-learning is the readiness and capacity of both teachers and students to embrace new teaching techniques and technologies.

A methodologically well-structured educational process, when combined with the effective use of electronic educational resources and adequate material support, can significantly enhance foreign language instruction. This approach can enhance the quality of teaching.

The article highlights the importance of considering the neuropsychological and neurophysiological characteristics of a child's brain development when teaching foreign languages through distance learning. By taking these factors into account, an optimal educational environment can be created, one that fosters mutual support among students, parents, teachers, and other professionals. This ensures that even if one participant in the learning process faces difficulties, the system remains stable and effective.

Despite the clear advantages of distance learning technologies, challenges remain, including information overload on digital educational platforms, ensuring the quality and relevance of content, and resolving copyright issues.

The objectives of the article are achieved through methods such as critical analysis, synthesis of scientific and methodological sources, systematic analysis, descriptive and predictive techniques, and the use of generalisation and systematisation through induction and deduction, as well as the traductive method.

References

- Alomari, I., Al-Samarraie, H., & Yousef, R. (2024). The role of gamification techniques in promoting student learning: A review and synthesis. *Journal of Information Technology Education: Research*, 18, 395–417. <https://doi.org/10.28945/4417>
- Bahji, S. E., El Alami, J., & Lefdaoui, Y. (2015). Learners' attitudes towards extended-blended learning experience based on the S2P learning model. *International Journal of Advanced*

- Computer Science and Applications*, 6(10), 70–78.
<https://doi.org/10.14569/IJACSA.2015.061010>
- Chaudhry, I. S., Paquibut, R., & Islam, A. (2021). Testing the success of real-time online delivery channels adopted by higher education institutions in the United Arab Emirates during the Covid-19 pandemic. *International Journal of Educational Technology in Higher Education*, 18, Article 48. <https://doi.org/10.1186/s41239-021-00283-w>
- Cook, K. R., Owston, D., & Garrison, R. (2004). *Blended learning practices at COHERE universities: Technical report 2004-5*. York University.
<https://irdl.info.yorku.ca/files/2014/01/BLtechnicalreportfinal.pdf>
- Ghaithi, A. A., & Behforouz, B. (2024). The use of an interactive chatbot in grammar learning. *The Journal of Educators Online*, 21(4), 1–10. <https://doi.org/10.9743/JEO.2024.21.4.12>
- Holovan, V., Horlichenko, A., & Drozdov, M. (2024). Dystantsiine navchannia inozemniy movi u vvz v suchasnykh umovakh [Distance learning of foreign languages in military higher education institutions in current conditions]. *Dystantsiina osvita v Ukraini: innovatsiini, normatyvno-pravovi, pedahohichni aspekty* [Distance Education in Ukraine: Innovative, Normative-Legal, Pedagogical Aspects], 1(4), 227–238.
<https://doi.org/10.18372/2786-5495.1.18904>
- Khyzhniak, I. A. (2010). Metodychni pryomy zastosuvannia informatsiino komunikatsiinykh tekhnolohii na lektsiinykh zaniattiakh u vyshakh [Methodical approaches to using ICT in lectures at universities]. *Naukovyi chasopys Natsionalnoho pedahohichnoho universytetu imeni M. P. Dragomanova. Seriya 5 Pedahohichni nauky: realiyi ta perspektyvy* [Scientific Journal of M. P. Dragomanov National Pedagogical University. Series 5 Pedagogical Sciences: Realities and Prospects], 23, 348–352.
http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?C21COM=2&I21DBN=UJRN&P21DBN=UJRN&IMAGE_FILE_DOWNLOAD=1&Image_file_name=PDF/Sitimn_2012_32_98.pdf
- Lee, G., Fong, W. W., & Gordon, J. (2013). Blended learning: The view is different from student, teacher, or institution perspective. In S. K. S. Cheung, J. Fong, W. Fong, F. L. Wang & L. F. Kwok (Eds.), *ICHL 2013: Hybrid Learning and Continuing Education. Lecture Notes in Computer Science* (Vol. 8038, pp. 356–363). Springer.
https://doi.org/10.1007/978-3-642-39750-9_33
- Legault, J., Zhao, J., Chi, Y.-A., Chen, W., Klippel, A., & Li, P. (2019). Immersive virtual reality as an effective tool for second language vocabulary learning. *Languages*, 4(1), Article 13.
<https://doi.org/10.3390/languages4010013>
- Liashenko, U. I. (2015). Informatsiini tekhnolohii u pidhotovtsi fakhivtsiv morskoho profilyu [Information technologies in the process of training maritime specialists]. *Informatsiini tekhnolohiyi v osviti* [Journal of Information Technologies in Education], 24, 159–171.
http://nbuv.gov.ua/UJRN/itvo_2015_24_13
- Lucas-Oliva, I., Toledo-Vega, G., & Núñez-Román, F. (2022). From neurodidactics to language teaching and learning: The emotional approach. *Theory and Practice in Language Studies*, 12(8), 1457–1467. <https://doi.org/10.17507/tpls.1208.01>
- McCarthy, J. (2016). The philosophy of AI and the AI of philosophy. *Philosophy of Information*, 8, 711–740. <https://doi.org/10.1016/B978-0-444-51726-5.50022-4>
- Muftah, M. (2022). Impact of social media on learning English language during the COVID-19 pandemic. *PSU Research Review*, 8(1), 211–226.
<https://ideas.repec.org/a/eme/prpps/prr-10-2021-0060.html>
- Nerubasska, A., & Maksymchuk, B. (2020). The demarkation of creativity, talent and genius in humans: A systemic aspect. *Postmodern Openings*, 11(2), 240–255.
<https://www.lumenpublishing.com/journals/index.php/po/article/view/2625>

- Nerubasska, A., Palshkov, K., & Maksymchuk, B. (2020). A systemic philosophical analysis of the contemporary society and the human: New potential. *Postmodern Openings*, 11(4), 275–292. <https://doi.org/10.18662/po/11.4/235>
- Novachenko, I. (2023). Vykorystannia tsyfrovyykh instrumentiv pid chas dystantsiinoho navchannia z vyvchennia inozemnoi movy (za profesiinym spriamuvanniam) v zakladakh fakhovoi peredvyshchoi osvity [Using digital tools in foreign language distance learning (for professional purposes) in vocational pre-higher education institutions]. In M. Holdenblat, G. Blandin, T. Bilous, & I. Bondarenko (Eds.), *Proceedings of the V International Scientific and Practical Conference “Débats Scientifiques et Orientations Prospectives du Développement Scientifique”* [Scientific Debates and Prospective Directions of Scientific Development], (pp. 137–141). La Fedeltà & Plateforme scientifique européenne. <https://doi.org/10.36074/logos-21.07.2023.39>
- Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: Definitions and directions. *Quarterly Review of Distance Education*, 4, 227–233. <https://eric.ed.gov/?id=ej678078>
- Peha, S. (2011). Agile schools: How technology saves education (just not the way we thought it would). *InfoQ*. <https://www.infoq.com/articles/agile-schools-education/>
- Rivera, J. L. (2019). Blended learning-effectiveness and application in teaching and learning foreign languages. *Open Journal of Modern Linguistics*, 9, 129–144. <https://doi.org/10.4236/ojml.2019.92013>
- Sanjaya, E. (2023). The potentials and challenges of mobile-assisted language learning (mall) for EFL/ESL learners. *Edukasi: Jurnal Pendidikan* [Education: Journal of Education], 21(2), 272–286. <https://doi.org/10.31571/edukasi.v21i2.6054>
- Tiwari, H. P. (2024). Artificial intelligence in the classroom: Revolutionizing English language teaching. *Journal of English Teaching and Linguistics Studies*, 6(1), 42–59. <https://journal.unpak.ac.id/index.php/Jet-Li/article/view/9757/pdf>
- Vinnikova, L. (2021). Faktory motyvatsii studentiv ta uchniv pry dystantsiinomu navchanni anhliskoi movy [Factors affecting student and pupil motivation in English language distance learning]. *Molodyi vchenyi* [Young Scientist], 12(100), 40–43. <https://doi.org/10.32839/2304-5809/2021-12-100-9>
- Wilson, A. (2024). Effective professional development for e-learning: What do the managers think? *British Journal of Educational Technology*, 43(6), 892–900. <https://doi.org/10.1111/j.1467-8535.2011.01248.x>
- Zaiarna, I., Klavdich, V., & Yuzefovych, K. (2024). Exploring the role of ChatGPT in foreign language acquisition among law students: A survey-based analysis. *Naukovyi chasopys NPU imeni M. P. Drahomanova. Serii 5. Pedagogichni nauky: realii ta perspektyvy* [Scientific Journal of Drahomanov Ukrainian National University. Series 5. Pedagogical Sciences: Realities and Prospects], 99, 31–36. <https://doi.org/10.31392/UDU-nc.series5.2024.99.06>
- Zeng, H., & Luo, J. (2023). Effectiveness of synchronous and asynchronous online learning: A meta-analysis. *Interactive Learning Environments*, 32(8), 4297–4313. <https://doi.org/10.1080/10494820.2023.2197953>