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The Use of Modern Technologies by Foreign Language Teachers: Developing Digital Skills

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Abstract---In recent years, the question of using new information technologies in the education system has been increasingly raised. These are not only new technical means but also new forms and methods of teaching, a new approach to the learning process. The purpose of this study consisted in developing a program for teaching future foreign language teachers using digital technologies. In this study, a descriptive and analytical methods were used. Analysis of specialised literature on research topics as well as of training programs for future teachers of a foreign language was conducted. A system of classes for future teachers of a foreign language for a semester in the subject “English” and a number of recommendations for creating a course and conducting classes using digital technologies has been developed. A pilot study that showed the effectiveness of these techniques was conducted. It was found that thanks to the authors’ approach the students can complete the tasks assigned to them more quickly and learn how to correctly apply new tools in their work.

Keywords---computer language education, developing skills of students, digital linguistic competence, digital technologies, foreign language, higher education, language development, language education, language learning, pedagogical education, teaching languages.

Introduction

In the first half of the 21st century, the range of technologies available for use in learning and teaching languages has become very diverse, and the way they are used in educational institutions around the world has become a natural practice. It can safely be said that now is a time when digital technologies are in the spotlight. Some researchers call this period “normalised” (Hepp et al., 2015, Ismailova et al., 2018, Zhorabekova et al., 2013). Digital units exist in the daily life of many people in different parts of the world (Warschauer, 2003), but they are still not always found in the world of education. However, digital tools have long been a feature of the educational world and especially language education. These digital tools are central to what is an established area of computer-assisted language learning, but are also becoming an increasingly important part of English language teaching in general. In a world where laptops, tablets and computers or mobile phones are increasingly regarded as the technology of choice, it can be argued that humanity is at a tipping point where the education system must adapt to new opportunities.

It should be noted that innovative teaching methods used in the system of the modern educational process in higher education include interactive tools, forms and methods of educational activities in the interactive information environment of the university. At the same time, the essence and structure of the innovative educational process in higher education should adequately reflect the nature and speed of social changes in society. The modern content of higher education should be focused on the use of information technology, the comprehensive dissemination of interactive, e-learning with access to digital and intellectual resources for the future state.

Expanding and updating the forms of educating a teaching staff is a constant challenge for the education system. Initial and continuing education initiatives focused on current topics such as the process of learning a foreign language or the intercultural dimension are becoming more and more widespread. They equally contribute to the expansion of academic freedom of institutions and universities offering such programs. Even if the Ministry of Education continues to provide guidance on the content of curriculum modules, the institutions responsible for teaching staff are the ones that set the timetable for the courses, the relationship between theory and practice, the degree of integration of recent research findings, or the importance given to certain related academic subjects such as linguistics, psychology, pedagogy and civilisation. Such skills, based on personal experience, cannot be developed in situations other than authentic ones, therefore it is important to include in the curriculum for the preparation of foreign language teachers courses focused on various types of pedagogical practice (Postareff et al., 2007; Depaepe et al., 2013), as well as types of activities in which work methods are used encouraging the expression of personal and social skills, such as self-reliance or teamwork.

Linguistic, social and cognitive development of learners is closely and directly related to active participation in socio-cultural activities (Hall & Walsh, 2002) and the environment. In this sense, classrooms are not the only places that affect students’ language development. The digital interaction of students and teachers

that provides opportunities for social learning can make a positive contribution to the educational process. The growing amount of resources devoted to educational technologies raises an important question: How effective are they? Recent literature reviews have shown that many promising innovations have not made an impact on student learning as measured by reading and math scores. A 2017 review found that simply giving students access to equipment has a limited impact on learning outcomes (Escueta et al., 2017; Sudarmo, 2021). A promising finding from the study is that machine learning equipped with a personalisation component such as adaptive learning platforms can be quite effective. Nevertheless, due to the active course of technological progress and the emergence of all new types of multimedia and digital technologies against the background of a change in educational paradigms, the practice of using these technologies is still ahead of theory. The purpose of this study is to develop a program for teaching future foreign language teachers the basics of pedagogy using digital technologies.

Materials and Methods

For this study, a descriptive and analytical method was used to study and analyse specialised literature on research topics, linguistics, teaching in the digital education system, computer language education, the introduction of digital technologies and the Internet in the education process. Also, one of the leading methods of this research was analysis. The selection of individual parts, connections based on the dismemberment of the whole made it possible to identify areas in the educational system where digital technologies can be used (Papadopoulos et al., 2020; Patel, 2010; Berkhout & Hertin, 2004). Studying the originality of the organisation of the pedagogical process in courses for teaching English, it is possible for analysis to isolate separately its goals, content, principles, methods, forms, means, control. For this purpose, training programs for future teachers of a foreign language were studied and analysed. The application of digital technologies in the educational process of European countries was also studied. Sociological studies and works on the impact of digital technologies on the development of skills necessary in a professional environment were studied.

After that, the synthesis method was used – combining the results of the analysis in the general research system. On the basis of synthesis, an object was recreated as a system of connections and interactions with the selection of the most essential of them. Based on the synthesis, the main competencies were derived that develop in the digital environment. A system of classes for future teachers of a foreign language for a semester in the subject “English” has been developed. A variable trial program was developed with the inclusion of digital technologies in the educational process. Additionally, a number of recommendations have been developed for creating a course and conducting classes using digital technologies and partial online training. Based on these programs and recommendations, it is necessary to conduct a pilot study that will show the effectiveness of these techniques.

Results

In terms of the skills required for learning in present, the following can be highlighted: literacy, quantitative thinking, inter/intrapersonal skills, civic awareness, professional skills, 21st-century skills that include cooperation, critical thinking, communication or problem solving, research skills, digital literacy, creative skills. The prioritisation of each of the skills among teachers and students has been structured as follows: while digital literacy might have been expected to be in the spotlight, literacy followed by 21st-century skills is the most common skill targeted by technological innovation today (Figure 1). It can be seen that the gap from other skills is quite impressive. 21st-century literacy and skills account for 61% and 58% of educational technology innovation, respectively (Vegas et al., 2019).

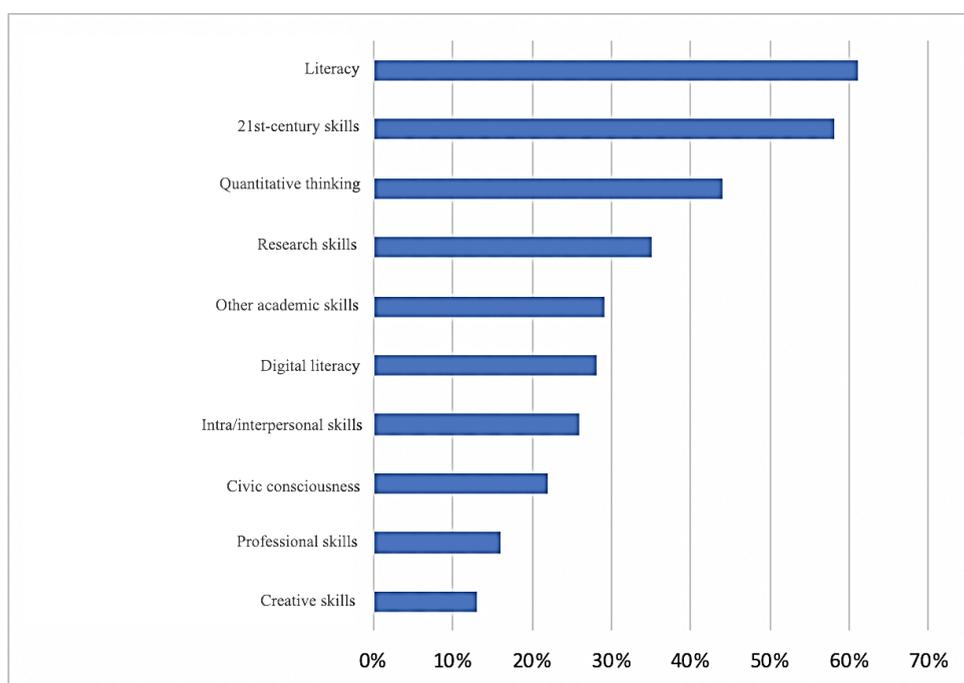


Figure 1. Competencies necessary for professional activity in the 21st century

Quantitative thinking rounds out the top three skills that innovation in educational technology targets. Importantly, nearly 70 percent of technological innovation in the research focuses on more than one skill, showing that the correct use of technology can contribute to the development of a range of skills. This shows that the use of digital technology to acquire the skills necessary for further professional activities is essential. It is also important to use innovative technologies to learn a foreign language and develop pedagogical skills. In the context of learning a foreign language, it is worth considering a narrower one – digital foreign language competence. Digital foreign language competence means the ability to effectively use modern digital technologies in English to solve a wide range of tasks, from every day to professional (educational), taking into account the norms of intercultural communication. Digital competence in English includes

4 main components: digital linguistic competence; digital technical competence; digital multimedia competence; telecommunication competence (Figure 2).

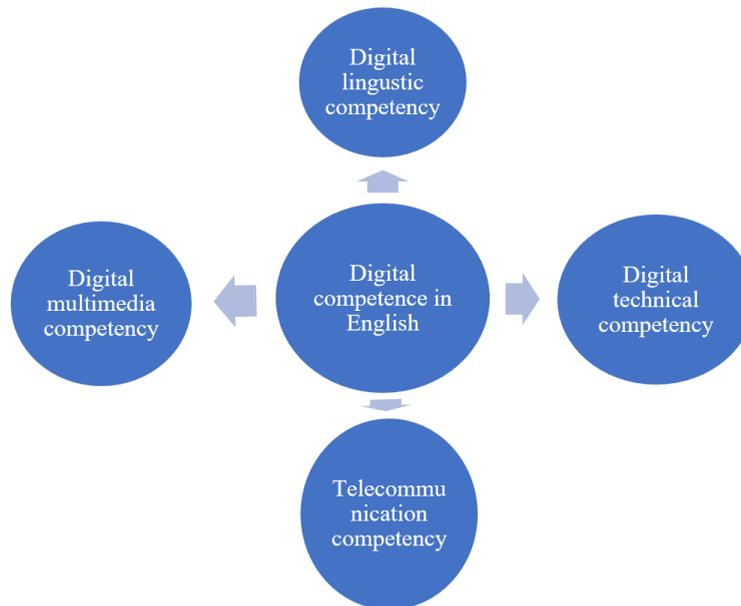


Figure 2. Components of digital competence

So, digital linguistic competence is, first of all, the possession of special vocabulary necessary for working with computer programs and the Internet (Biletska & Paladieva, 2018; Ritonga et al., 2021). Also, this is the possession of a special register of the English language used for communication on the network. Digital multimedia competence is determined by the ability to navigate information flows, to quickly receive, filter, analyse, understand and generate information in various formats (audio, video, graphics, animation, etc.) in English. Telecommunication competence implies the ability to effectively and safely use modern telecommunication tools (e-mail, social networks, instant messengers) for remote communication in English. Digital technical competence includes the following set of trainees' characteristics: confident use of technical devices, software and modern information technologies for solving a wide range of problems; awareness of the specifics of the virtual online environment, digital (online) risks and methods of protection against them, as well as the readiness for responsible behaviour on the Internet and careful handling of technical means. The Internet offers users a wealth of resources and information. The use of its capabilities in the education system can significantly accelerate the teaching of a foreign language. The basic set of services may include:

- email; teleconferences; video conferencing;
- the ability to publish one's own information, create home page and place it on a Web server;
- access to information resources;
- reference catalogues; search engines; conversation on the net.

Mastering communicative and intercultural competence is impossible without communication practice, and the use of Internet resources in a foreign language lesson in this sense is simply irreplaceable. Digital competence can be understood as a set of knowledge, strategies and skills that enable a person to solve typical emerging problems related to the digital world in terms of communication, choice information, writing, etc. using digital support. Digital competence has an additional dimension related to the nature of technological systems and tools as an object of knowledge. Coding intellectual activity teaches abstract, logical, and structured thinking, promotes autonomous and innovative thinking, and helps develop “computational thinking”, that is, reasoning and intuition that helps students develop problems. solution strategies. In some countries, “computational thinking” is gaining importance in compulsory education.

The electronic educational environment is designed to provide the student with access to curricula, programs and materials from any point where there are appropriate communication networks. It allows recording the results of mastering OOP (object-oriented programming) disciplines and ensures the interaction of participants in the educational process. Electronic provides the following opportunities: a teacher can create courses, filling them with text files, auxiliary materials, presentations, videos, etc.; create glossaries using automatic links to course materials; change the course content, structure of lecture materials depending on didactic tasks, and also control the assimilation of the material using tests based on the module materials. In order to train future teachers to correctly use digital technologies in a professional environment, it is important to implement them in the training process. For training future foreign language teachers, the following variable programme on “English” for the semester was developed (Table 1).

Table 1
Training program for future English teachers

Didactic goal	Format of the work	Implementation
Searching for, acquiring knowledge	The full-text lecture	File in Word or PDF format of 10-15 pages on a given topic, offered for reading.
	Video lecture	Lecture recorded by a pedagogue and provided in video.
	Webinar	Online video link, which allows organising a chat and receiving feedback from participants.
Joint solution of educational tasks	Seminar-forum	Analysis of assignments, discussions on problematic issues, group assessment of work throughout the course or topic. All statements are written, so it is possible to evaluate and analyse the degree of student activity, the weight and validity of the arguments, etc.
	Seminar-chat	Synchronous work on a given topic,

	Seminar-webinar	limited by the time of a real lesson. Virtual seminar in real time with multi-way video and audio communication. Here it is possible to watch presentations, upload video and audio files, transfer control to the presenter, etc.
Knowledge control	Test assignment	Clearly formulated control tasks of different levels for “manual” and automatic verification.

When preparing future teachers using digital technologies, it is important to set up the process correctly. New tools can be an effective way to communicate information. But they can also become a hindrance, as the wrong choice of teaching tools or a large overload of them prevents students from focusing on developing skills. In order to competently integrate digital technologies into the course of learning English, it is important to consider some recommendations. Regarding the creation and development of the course, it is worth observing the following requirements:

- technological changes must be added to the educational process gradually;
- combining a large number of training tools without prior preparation can interfere with the effectiveness of the process;
- planning of the time allotted for the creation and delivery of an effective course should proceed from existing tools;
- it is necessary to think in advance how the course might change.

What new tools may be needed to cover a specific topic. Integration and complementarity of teaching methods must meet the following criteria: it is important to integrate technologies, and not just use them as an additional learning tool in the course; networked activities should not only complement the objectives of a lesson, but also add value. This compensates for the audience and the lack of other tools; it is important to ensure that student actions are integrated into the assessment system. It is also important to consider the following guidelines when choosing tools: choose the right tools for the course. Not all tools can provide a sufficiently effective learning outcome. It is important to distinguish between work with technology, Internet resources, social networks, etc.; it is necessary to analyse the available resources to see if the proposed tools will work in the system.

When defining the objectives for the course, a teacher should focus on building online assignments and creating social interactivity. Each assignment in the course should be short enough for all students to focus on and complete without distraction. That said, online assignments should be challenging enough to give the student space for reflection. This is especially true for stronger students. Online assignments should definitely go beyond what can be done in a book or in class. During the course, an important element of consolidating knowledge and practice is the exchange of roles. Students and teachers should change their roles in the classroom and use digital technology during this exchange. The teacher’s

role in learning should be kept to a minimum thanks to additional online assignments. It is important that he helps the student to navigate, but not overburdened with this work. At the same time, the training of teachers in a higher educational institution should also not stop. It is important to teach students to comment on their work and the work of their peers, to give an objective assessment (Garrison & Kanuka, 2004; Van Dinther et al., 2011). Thus, in order to prevent difficulties in the learning process, it is necessary to take into account the peculiarities of introducing digital technologies into the educational process. Starting from course planning and inclusion of digital technologies in it and ending with competent communication with students. All aspects must be studied to prepare future teachers to work with new technologies.

Discussion

Although traditional teaching methods have been more or less similar around the world, adapting learning strategies and styles to different social, economic and educational contexts has always been a subject of consideration. The rise of technology and computer applications has affected almost every aspect of daily life around the world. This is also the case in education; the latter has changed dramatically with the approval of apps that help students improve their writing and speaking abilities, as well as help them develop new skills that empower them (Nurutdinova et al., 2016). The literature review presented in this article shows that learning in a virtual environment has made significant contributions to social change in higher education. It does this by providing new media to gain access to new knowledge, encouraging dialogue between teachers and students, and between students themselves (Berge & Muilenburg, 2000). It is important to note, however, that teachers should be more than just translators for new technologies. They must integrate the new tools that digital technologies provide. The educational process with their help should be organic.

The future professional teacher needs to acquire not only serious scientific background, but also a set of skills that cannot be standardised. However, they are useful in atypical educational situations, the solution of which requires creativity, spontaneity, self-confidence, openness to new things, power to adjust. Such an exercise can only be performed in an authentic classroom environment where the student will be able to apply the theoretical principles of foreign language teaching. A recent study by scientists among students preparing for teaching in this area demonstrates the persistence of a state of dissatisfaction due to the insufficient number of hours devoted to teaching practice, which are rightly considered to be the main constituent part of initial psychological and pedagogical training (Anca, 2013).

In addition, its simple organisation is questioned by students, pointing out the discrepancy between their learning needs and the units of study where the practical classes are held (primary schools and kindergartens represent a sporadic presence in the future foreign language curriculum). Researchers at universities and teacher training departments should work closely with local teaching schools so that trainees can experiment with methods and materials based on the developed curriculum and contribute through expert feedback to develop and improve the curriculum and create an acceptable international

standard (Calabrese & Russo, 2016). The role of language teachers should be reconsidered in order to improve interaction with their students not only on the Internet, but also in real life situations. In particular, they should take on roles such as organiser, prompter, participant, resource, mentor, consultant, and investigator, rather than the roles of supervisor, corrector, and evaluator. Thus, they will increase the level of interaction with their students and facilitate learning.

Teachers play different roles in an educational context. The effectiveness of their roles depends on more active interaction with their students in real life and online environments. Second, teachers should spend time with their students through social media such as Facebook in order to build better and less formal relationships with them; this should be in addition to traditional business hours. In addition, teachers should view Facebook as a normalised and internalised environment that is no different from real life and should not allow their students to leave and avoid interaction. By engaging more actively with their students, teachers can better understand students' feelings and gain educational opportunities, which can lead to positive learning experiences. Teachers of the new era must learn to use social media tools, which are now an integral part of human interaction, to interact with their students in a social context, since student development is directly related to active participation in socio-cultural activities (Aydin, 2012). In fact, ideal interaction with students on social networking sites is the gateway to social and cultural learning in a constructivist environment, enhancing the language learning experience and cognitive development of students. Teachers should continue to contribute to their students' learning by connecting them with more knowledgeable people on social media (Aydin, 2014). The study shows that educators should design the educational process in such a way that the introduction of digital technologies does not interfere with the main goal of learning. For each course, it is important to select different sets of digital tools, experiment, combining them with familiar teaching methods.

The process for students is structured differently. At the very initial stage of learning, when they have a very meagre vocabulary, they have to make a lot of effort when introducing new words. In this case, before the presentation of a small fragment of the topic, words unfamiliar to students are displayed in turn on the screen, where they are used in a subsequent sentence or definition. There is a gradual filling of the plate – a kind of mini-dictionary containing the Ukrainian (Russian) word (or term) and its spelling in Arabic, English and French. Multilingual translation is due to the peculiarities of the school training of the student contingent. A teacher clearly pronounces a word several times, and students repeat it, writing it down in their workbook. Only after making sure that all new words have been learned, a teacher submits on the screen a text of the statement necessary to disclose the topic and, if required, illustrative or graphic material. At first, the work proceeds extremely slowly, but as students accumulate vocabulary, the pace of material presentation accelerates, its volume increases, the proposed text becomes lexically more complicated. However, even at the end of the lesson, the presence of a dictionary at the bottom of the screen remains, although at the later stages of training there is no need for the teacher and students to work with it in detail. Students use it on their own, trying to

translate a chemical text from Ukrainian/Russian into their native language and to understand its meaning for themselves. Thus, the main idea is that a learner should participate in the learning process, mainly on the basis of “knowledge gaps” in which new information does not conflict with his previous knowledge in his native language (Calabrese & Dawes, 2008).

A good result is the use of virtual flash cards, when a framed name, a term, a keyword appears on the screen, which students should explain and instantly check the correctness of their efforts by clicking on the card field and thereby turning it the reverse side containing the correct answer. Their use is especially effective for the accelerated memorisation of new words and terms by students (Dychenko & Bolshanina, 2018). By combining these techniques with digital technology, it is possible to achieve the desired result faster and more efficiently. The pedagogical challenges facing future foreign language teachers must organically interact with their new skills and technologies.

Conclusion

Based on a thorough analysis of scientific works on the implementation of innovative technologies in the educational process, it can be concluded that the theoretical foundations of innovative teaching methods in higher education are not sufficiently developed. In addition, new educational technologies and teaching methods are not sufficiently developed. There are no effective mechanisms for their practical implementation and optimisation in the educational process of higher educational institutions. It is important to note that digital competence is one of the necessary for teachers of the new era. This is especially true for English teachers. Learning a foreign language is a time-consuming process. New technologies can make it easier. The use of Internet resources, various sites, communication programs, social networks and other technologies allows finding and assimilating information faster, develop creative thinking and consolidate the necessary material. By studying such tools, future educators can integrate them into their teaching methodology, developing like professionals.

To develop digital skills in future teachers, it is important to introduce courses using new technologies into their educational process. The curriculum developed in this study includes a combination of traditional teaching methods and digital technologies. Thanks to this approach, students can more quickly complete the tasks assigned to them and learn how to correctly apply new tools in their work.

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