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# СУЧАСНІ ПІДХОДИ ТА ІННОВАЦІЙНІ ТЕХНОЛОГІЇ ФОРМУВАННЯ ІНШОМОВНОЇ КОМУНІКАТИВНОЇ КОМПЕТЕНТНОСТІ

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e-mail: gantoniuk@yahoo.com

lilia.chernysh@ukr.net

mariia.v.koshlan@lpnu.ua

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UDK: 378.016:811.112.2:004.9

ORCID: <https://orcid.org/0000-0002-9594-6661>

**Halyna Antonyuk,**

*PhD in Philosophy, associate professor of the Department of Applied Linguistics,  
Lviv Polytechnic National University*

ORCID: <https://orcid.org/0000-0002-2277-1311>

**Lilia Chernysh,**

*PhD in Philosophy, associate professor of the Department of Applied Linguistics,  
Lviv Polytechnic National University*

ORCID: <https://orcid.org/0000-0002-1477-124X>

**Maria Koshlan,**

*lecturer of the Department of Applied Linguistics,  
Lviv Polytechnic National University*

## DIDACTIC PRINCIPLES OF IMPLEMENTATION OF DIGITAL TOOLS IN THE PROCESS OF LEARNING GERMAN AS A SECOND FOREIGN LANGUAGE

*The article analyzes the didactic principles of using digital tools as a type of information and communication technologies when learning German as a second foreign language. Specialized applied software for distance, electronic and mobile learning became the object of didactic analysis. The expediency and effectiveness of introducing mobile applications CuePrompter, simpleshow, Bingo Baker, Wordwall, Klett Augmented into the educational process were investigated; a comparative analysis of students' success in the conditions of traditional (with limited use of ICT) and distance learning with wide implementation of technologies in the educational process was made. It was concluded that the didactically justified implementation of digital applications promotes motivation to learn foreign languages, increases the effectiveness and quality of education. At the same time, the introduction of digital tools requires proper media training and digital competence on the part of all participants in the educational process.*

**Keywords:** *information and computer technologies, digital tools, distance learning, traditional learning, digital competence, efficiency, expediency, effectiveness.*

**Антонюк Галина Дмитрівна,**

*кандидат філософських наук, доцент кафедри прикладної лінгвістики,  
Національний університет «Львівська політехніка»*

**Черниш Лілія Зенонівна,**

*кандидат філософських наук, доцент кафедри прикладної лінгвістики,  
Національний університет «Львівська політехніка»*

**Кошлань Марія Володимирівна,**

*асистент кафедри прикладної лінгвістики,  
Національний університет «Львівська політехніка»*

## ДИДАКТИЧНІ ЗАСАДИ ВПРОВАДЖЕННЯ ЦИФРОВИХ ІНСТРУМЕНТІВ У ПРОЦЕС ВИВЧЕННЯ НІМЕЦЬКОЇ МОВИ ЯК ДРУГОЇ ІНОЗЕМНОЇ

У статті проаналізовано дидактичні засади використання цифрових інструментів як різновиду інформаційно-комунікаційних технологій при вивченні німецької мови як другої іноземної. Об'єктом дидактичного аналізу стали спеціалізовані прикладні програмні засоби для дистанційного, електронного і мобільного навчання. Досліджено доцільність та ефективність впровадження у навчальний процес мобільних застосунків CuePrompter, simpleshow, Bingo Baker, Wordwall, Klett Augmented; зроблено порівняльний аналіз успішності студентів в умовах традиційного (з обмеженим використанням ІКТ) та дистанційного навчання з широким впровадженням технологій у навчальний процес. Зроблено висновок, що дидактично обгрунтована імплементація цифрових додатків сприяє мотивації щодо вивчення іноземних мов, підвищує результативність та якість навчання. В той же час впровадження цифрових інструментів вимагає належної медійної підготовки та цифрової компетентності з боку усіх учасників навчального процесу.

**Ключові слова:** інформаційно-комп'ютерні технології, цифрові інструменти, дистанційне навчання, традиційне навчання, цифрова компетенція, ефективність, доцільність, результативність.

**Problem formulation.** In the modern conditions of society informatization, the value orientations in education are being rethought, which significantly actualizes the need to train highly qualified specialists of various specialties who will be able to carry out professional activities using native and foreign languages in the innovative technological space. This leads to the search for new educational paradigms and concepts, as well as forms, methods and means of learning, which will have a favorable effect on the improvement of the quality of education. In this context, the didactic role of technical tools, in particular digital tools, which are widely introduced into the educational process of educational institutions of various specializations, is growing.

In this article an attempt is made to analyze the didactic principles of the use of digital tools as a type of information and communication technologies in the study of German as a second foreign language at the Department of Applied Linguistics of the Lviv Polytechnic National University during the period 2019-2022 (before the declaration of martial law). The object of the didactic analysis was standard ICT services (forums, blogs, messengers, IP-telephony), as well as specialized applied software tools for distance, electronic and mobile learning (for the training of specialists of the first (bachelor) level of higher education, direction 035 "Philology (Modern German language)", "Speech practice", "Translation"), fields of knowledge 03 "Humanities".

**Analysis of recent studies and publications.** The issue of introducing ICT into the educational process at various levels was and is being investigated by domestic and foreign scientists and practicing teachers.

A conceptual framework for DLT use in education has been elaborated in works by V. Bykov, A. Hurzhiy, L. Hrynevych, R. Hurevych, M. Zhaldak, V. Kukhareno, V. Lapinskiy, N. Morze, O. Spivakovskiy, O. Spirin, et al. The theoretical aspects of teachers' and students' digital competence formation are highlighted in the research of many scholars. The academic studies by Yu. Bykov, O. Hrytsenchuk, S. Lytvynova, I. Malyska, O. Kravchyna focus on research of the best overseas practices in the realm of development of teachers' digital competence, assessment and measurement of teachers' and students' digital competence, etc. In particular, the advantages of teacher's digital competence development in the process of education have been thoroughly analysed by Yu. Bykov at M. Leshchenko [1]. A significant contribution to the research of the structure of digital competence of a teacher has been made by I. Ivanyuk, O. [2], Spirin [3] et al. Modern-day academic researchers have made attempts to define and differentiate between "Digital Technology" (DT) and "Information and Communication Technologies (ICTs)"; still both of these terms tend to be used interchangeably in pedagogical and methodological literature. In the area of ICTs use in foreign language education, major research works include studies by E. Polat, L. Morska, O. Shestopalyuk, J. Hammer, et al. The recent publications of Ukrainian academic researchers focus on issues dealing with ICTs use in the professional training of future linguists. O. Ustyenko highlighted the role of the "Plickers" application for interactive testing and formal assessment in the foreign language classroom [4]; the issue of the didactic role of digital game tools for knowledge assessment is highlighted by Zhigadlo O.Yu. [5].

Despite the large number of scientific and methodological works on the didactic implementation of information technologies and digital applications in the educational process, the question of their classification, justification of the feasibility of use at various stages of learning a foreign language (German), as well as the study of their shortcomings and risks is relevant.

**The aim of the study.** The purpose of this study is to determine the effectiveness of the implementation of mobile applications (CuePrompter.com, vocaroo.com., simpleshow.com., Bingo Baker, Klett Augmented, etc.) in the process of learning German as a second foreign language during the preparation of students of the first (bachelor) level of higher education of education in order to successfully implement the educational and professional program "Philology (Applied Linguistics)", specialty 035 "Philology".

**Research results.** Based on the analysis of the latest scientific publications on the effectiveness of the introduction of computer technologies into the educational process, it can be stated that virtual learning is and will continue to be a relevant form of organizing the educational process. The relevance and effectiveness of the online form is possible thanks to the current availability of many different educational applications, which is quite adequate in the conditions of digitalization of the educational sphere.

This article analyzes the ICT and tools that proved to be the most effective in the process of learning German as a foreign language at the Department of Applied Linguistics of the Lviv Polytechnic National University during 2019-2022. As the experience of the distance semesters 2019-2022 shows. yr., blended learning, which combined face-to-face classroom methods with ICT activities, turned out to be the most optimal.

In general, the main programs for communication during distance learning during 2019-2022 in pandemic conditions were: e-mail (@ukr.net, @lpnu.edu.ua and popular messengers: Viber, Telegram, WhatsApp, Facebook Messenger, Skype, Google Hangouts. Especially popular were the means of communication that allowed the exchange of instant messages in real time, that is, messengers through which texts, files, photos, videos, voice messages were transmitted, calls were made, group video conferences and chats (video, text and voice chats) were organized. Among the positive aspects of instant messages, we note the following: saving time, working with a group, always accurate delivery to the addressee, reducing communication costs, security.

In this part of the study, we will try to analyze the various mobile educational applications that have been actively used for several semesters at the Department of Applied Linguistics of the National Academy of Sciences of the Russian Academy of Sciences in the study of German as a second foreign language and which, according to the conducted oral survey, have proven to be the most effective for both teachers and students. The game continues until the winner is determined. Of course, this type of exercise is closed, but you can create cards so that the exercise becomes semi-closed. In particular, by training the grammatic. An effective mobile application is the free online teleprompter **CuePrompter.com**. (<https://cueprompter.com/>). This auto-tip service does not

require downloading additional programs or applications, allows you to work with it immediately in the browser, does not require registration. The application is easy to use, does not require significant time investment to get acquainted with the principles of its operation. In order to quickly start work, you need to enter or paste the necessary text and press the “Start Prompter” button. The program allows you to change the size and color of the text, as well as the background on which it appears. The teleprompter was successfully tested in German classes with first-year students who are beginning to learn the language. Within the “Home reading” module, the application was used to train students’ reading technique, since language learning began with the alphabet and, in fact, mastering elementary reading skills.

We tried to train the correct pronunciation using the **vocaroo.com** service (<https://vocaroo.com/>) by recording your voice on a voice recorder and playing it back in class. With third-year students of the CuePrompter.com application was also used to train simultaneous translation skills: the text appearing on the screen is to be translated, not read. This option is especially relevant in the training of translation specialists. The undoubted advantage of the application is the possibility of its use by students themselves for the purpose of individual training of reading and translation skills.

An effective tool in foreign language classes are educational videos. For this purpose, the department’s teachers and students use the **simpleshow.com** service (<https://simpleshow.com/>). This is an application for creating short video explanations. Using the application allows you to quickly and clearly explain any topic through the use of short videos. In the database of the application, there are many examples of ready-made videos on various topics, which are combined into blocks: educational (explanation of scientific facts, etc.), professional (presentation of companies, products), personal (invitations, autobiography, etc. Simpleshow.com has two working languages in which you can create videos: English and German.

The application for creating video clips can be used during the study of the German language at absolutely all levels. In our opinion, there are two most optimal ways of implementing video products in the educational process. First of all, educational videos can be created by the teachers themselves in order to present new grammatical structures, explain complex country studies concepts or real words. The use of video presentations promotes the growth of students’ motivation, diversifies the presentation of new material, simplifies information that is difficult to understand in German thanks to sufficient visualization based on the key words of the message. A significant advantage is the fact that the video is voiced by a native speaker, so students can hear authentic German.

**Bingo Baker** (<https://bingobaker.com/>) is an application that allows you to create cards for the game “Bingo”. After entering the data, the card is generated automatically and is unique for each player. The application allows you to play online or save the generated cards in Pdf format and print them, which allows you to use them in offline classes. Using cards in German lessons, we trained both vocabulary and grammar, depending on the information entered on these cards. It can be not only text, but also images. Thus, by training the lexical material “Körperteile”, you can generate cards with images of body parts. The teacher names the parts of the body in German, and the students cross out l construction Infinitiv mit zu, you can form a card with inflections where the use of the infinitive requires the particle “zu”: es ist schön,...; ich habe Lust, ....

Therefore, the Bingo Baker application has a wide range of uses in German language classes, it contributes to the effective training of both lexical and grammatical material using closed and semi-closed exercises, it provides the opportunity to search for already generated game cards on a certain topic. In addition, elements of games and competitions contribute to increasing the motivation of students.

**Wordwall** software (<https://wordwall.net/ru/myactivities>) – a resource for creating educational materials – is simple and convenient to use. Creating educational exercises takes place in three stages: choosing a template, entering information, printing or using materials online. It is worth noting that the application offers a number of ready-made templates that significantly facilitate the work on creating new educational materials. The application requires registration by the teacher.

As you can see, the Wordwall educational application has wide possibilities of its implementation in the educational process. In particular, even standard exercises from the textbook can be adapted, varied and supplemented with the help of this application. Such a modification of educational exercises contributes to a considerable increase in the motivation and interest of students.

An important mobile application for learning foreign languages, in particular German, is the **Klett Augmented** service. This mobile application is a scanning service for mobile devices that allows you to read media information presented in textbooks for learning foreign languages. The motto of this service is: Scannen, lernen, entdecken! (Scan, study, discover new things!). To use this application, it is necessary to download the program to a mobile device (phone, tablet), point the scanner over the book page and the program will automatically recognize all saved audio files, videos or links and play them directly on the device. Information on using the service, video instructions are available at: [www.klett-Sprachen.de/augmented](http://www.klett-Sprachen.de/augmented); <https://youtu.be/8zRy9VRAh4U>.

Since the priority in learning the German language is the authenticity of communication, the study of the German language in a linguistic and cultural context, the autonomy and interactivity of learning, therefore the application of **podcasting technology**, a method of distributing audio or video information on the Internet, and the production and offering of podcasts or videocasts at the same time is relevant for us.

Podcasts are audio blogs or broadcasts that are posted online as episodes that can be easily downloaded to an MP3 player and listened to at any time convenient for the user. Particularly valuable for German teachers is that the podcast service often offers educational materials that are based on a combination of audio, photo or video images, and texts.

Today, they offer their podcasts for learning German alongside the usual broadcasts of TV and radio stations Deutsche Welle (Sprachbar, Deutsch im Alltag, Deutsch perfekt Podcast, Wort der Woche, Langsam gesprochene Nachrichten), German von SBS Radio, radiodaf, ARD/ZDF (logo!, Deine Nachrichten, Tagesschau in 100s), printed resources Deutsch perfekt Podcast, websites of institutes Goethe Institut (Grüße aus Deutschland, Radio D).

However, the most attractive form for students remains the creation by applicants of their own podcasts thanks to the soundcloud, Spotify, Anchor, Google Podcasts, Apple Podcasts platforms according to the algorithm: defining a topic, developing a plan for finding the right content and German-language design, searching, writing a script, recording, joint reflection and feedback. editing and publishing on the platform created by the teachers or in your own blog. It is clear that auditory learning types especially liked this type of activity.

Based on the use of ICT tools in lectures and practical classes on learning the German language, we suggest classifying these tools by training, communication-cooperative, search-information, presentation, gamification and experimental functions.

Table 2.

Functions of the educational Web2.0 tool

| Function name              | Description   | Educational (mobile) applications, programs, services, platforms  |
|----------------------------|---|---|
| Training                   | Mobile applications contribute to consolidating knowledge of the German language, training skills: reading, writing, listening, speaking, the ability to read graphics:<br>a) online offers for textbooks (interactive multimedia educational materials);<br>b) training generators online or offline;<br>c) professional online communities; d) mobile learning; | «Menschen», LearningApps, Wordwall, Kahoot, Quizlet, Padlet, Jamboard, Memocard, Mindmeister, Card2brain, KlettAugmented, Cobocards, Popplet, www.fragmich.xyz, Vokabeltrainer-App des  |
| Communicative-cooperative  | applications facilitate<br>a) communication between participants of the educational process (in class or in remote mode) synchronously (video conference, chat, messenger) or asynchronously (e-mail, forum, blog);<br>b) information management through implementation of ideas and presentation of opinions and exchange with others (social networks).         | Zoom, Class Meet, Jitsi Meet, Office 365, Microsoft Teams, Adobe Connect, Skype, @ukr.net, @vnu.edu.ua, Viber, Telegram, WhatsApp, Facebook Messenger, Google Hangouts, навчальна платформа Dhoch3, Facebook, Instagram   |
| research informative       | Searching for information in the Internet for classes. Applications offer information in various formats (text, sound, graphic or video), QR- codes.  | Мультимедійні енциклопедії <a href="https://de.wikipedia.org">https://de.wikipedia.org</a> , вебпроекти (Aspekte), вебквести (SprachenQuests des GI Krakau), <a href="http://www.zeitblicks.de">www.zeitblicks.de</a> , <a href="http://www.bpb.de">www.bpb.de</a> , <a href="http://www.planet-wissen.de">www.planet-wissen.de</a> , |
| Presentative – researching | Research the acquired knowledge in practice, prepare digital (international) projects and present them.   | PowerPoint, Prezi, Wikis, Blogs, Podcasts, wordle.net   |
| Experimental               | Make audio and video recordings   | Vacaroo.com, simpleshow   |
| Gamification               | Learning in game form, online games.  | LernDeutsch (A1), Kahoot!   |

So, based on the presented classification, the resources used in the teaching process enable the teacher to develop didactic and diagnostic materials, and the students to use these resources at a convenient time. Students have the opportunity to work individually and in groups.

At the Department of Applied Linguistics of the Lviv Polytechnic National University, a survey was conducted among students of the I-IV courses (bachelor's degree) regarding the use of mobile applications in the process of learning German as a foreign language. 200 students took part in the survey: 100 students of the I-II courses and 100 students of the III-IV courses; the survey was conducted at the beginning of the II semester of 2021-2022. According to the purpose of the study, students were asked to answer the following questions:

1. How often are digital applications used in the process of learning German? (answer options: always, often, sometimes, never);
2. What tools are used most often (it is suggested to choose services: CuePrompter.com.; vocaroo.com.; simpleshow.com.; Klett Augmented)?
3. Are you satisfied with the use of ICT at the PL department in the process of learning foreign languages? (answer options: yes; no; can't answer).

After analyzing the students' answers, we obtained the following results:

1) 85% of students stated that they often use mobile applications in the process of learning German; 13% indicated that they sometimes use digital applications; 2% said that they do not use mobile services. The answers are presented in the diagram (Fig.1):

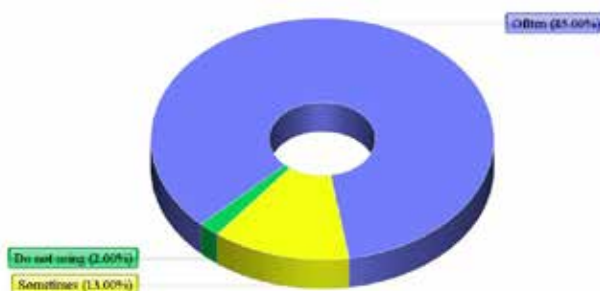


Fig. 1. The frequency of using mobile applications in the process of learning the German

2) The most frequent services in the process of learning German are: Klett Augmented (90%); approximately equally frequent among students are CuePrompter.com apps. and vocaroo.com. (48% and 45%, respectively); the least used application is simpleshow.com. (12%); (Fig. 2):

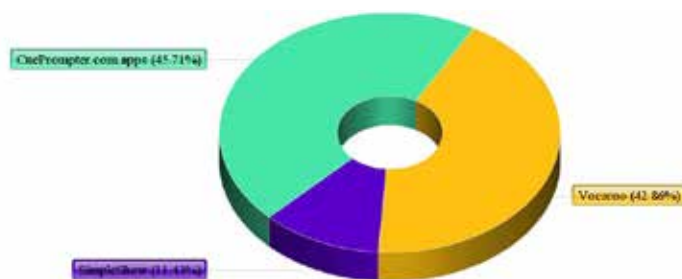


Fig. 2. The most frequent services in the process of learning German

3. When answering questions about the satisfaction of using digital services in the process of learning a foreign language (German), the following results were obtained: 75% of students said that they were satisfied with the use of digital services, 20% said “I can’t say”; 5% indicated that they are dissatisfied with the use of digital applications and distance learning in general (Fig. 3):



Fig. 3. Level of satisfaction with mobile applications

**Conclusions.** Distance learning, blended learning, e-learning and mobile learning have a place in the educational process. Under such conditions, the methodically correct use of ICT and digital tools is relevant. Digital technologies have proven to be important didactic tools in the process of learning German as a second foreign language. But teaching in a digital society places new demands on the teacher as a moderator of the educational process and on the student, who must work in new conditions. Along with the advantages of using mobile services in the educational process, there are also disadvantages: financial, organizational, technical, insufficient competence, as well as low media literacy of participants in the educational process, social inequality, etc. A caveat can also be the large number of mobile applications and developments that appear on the market every time and require mastering by both the student and the teacher; the implementation of new digital tools does not always meet the expected results. Therefore, the choice of digital technologies for the implementation of the educational process is a task that every teacher should solve independently, taking into account the psychological and pedagogical situation and the recommendations of experts.

We see the prospect of further research in the study of didactic opportunities for the introduction of ICT and digital tools in inclusive education. The goal of inclusive education is to reach as wide a range of students as possible, regardless of their social, financial status, physical, mental health, etc., and thus contribute to a more complete realization of the right of citizens to obtain quality educational services.

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