

ELECTRONIC DATA VISUAL AIDS IN DISTANCE EFL TEACHING DURING COVID-19 PANDEMIC

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Томенчук М. Electronic Datavisual Aids in Distance EFL Teaching During COVID-19 Pandemic; кількість бібліографічних джерел – 19; мова англійська.

Abstract. The article deals with the study of the visual aids usage in the process of teaching English in higher educational institutions during distance learning in the context of the Coronavirus pandemic. The aim of the article is to analyse the feasibility of using electronic data visual aids in distance learning of the English language during the Covid-19 pandemic.

Particular attention is paid to the concept of visual aids in the teaching of foreign languages and the principles of their application. It has been determined that the system of visual aids used in teaching a foreign language, is aimed at the implementation of teaching, educational, developmental and cognitive potential of training by means of electronic data visualization and visual presentation of knowledge. The use of visual aids is based on the principles of purposefulness, functionality, comprehensiveness and cognitive visualization.

In the course of the study, the available visual aids that are used in teaching students a foreign language have been analysed. The software which allows presenting educational material in an organized, compact and concentrated form and, thus, to make complex language phenomena comprehensible and available for memorization and assimilation of students have been described. Electronic data visual aids for studying and mastering language phenomena using such visual aids as multimedia presentations, mind maps, educational films, infographics, interactive whiteboards, etc. have been presented.

An empirical study has been conducted in the form of an online survey of students on the use of visual aids in the process of teaching English during distance learning in higher educational institutions under the conditions of the coronavirus pandemic. The results of the study indicate that the use of electronic data visual aids in teaching the English language offers great opportunities not only for introducing language facts, providing language knowledge in an accessible and easily comprehensible form, development of language skills, but also for increasing students' motivation to learn a foreign language in difficult learning conditions caused by the pandemic.

Keywords: visual aids, electronic data visualization, teaching English as a foreign language, institutions of higher education, distance learning, coronavirus pandemic.

Problem statement. According to the UN Policy Brief, the Covid-19 pandemic has caused the most massive educational disruption in history dramatically impacting nearly 1.6 billion students in more than 190 countries and on all continents. Educational institutions closures affected 94 percent of the world's student population [Policy Brief 2020]. The stringent necessity to switch to online education induced by the recent pandemic has appended to the mental strain and enormous workload imposed on university staff who were already struggling to maintain their precarious work-life balance [Houlden and Veletsianos 2020]. The hasty closure of face-to-face educational practices as a consequence of the Covid-19 pandemic has heightened the teachers' keen awareness of the difference between online teaching and their other offline working patterns. Empirically, distance teaching is a significant factor of working practices for many university teachers. On the other hand, this acute dilemma has spurred innovation in the education sector in general and in language teaching in particular. There have appeared cutting-edge approaches on the side of education continuity which include the use of digital technologies being the basis for visualization. However, as C. Rapanta et al. note, "the urgent and unexpected request for previously face-to-face university courses to be taught online" has placed an additional challenge since such teaching implies "a certain pedagogical content knowledge, mainly related to designing

and organising for better learning experiences and creating distinctive learning environments, with the help of digital technologies" [Rapanta 2020, p. 924]. The use of electronic data visualization means in the form of new information technologies and Internet resources help to implement a personalized approach to distance learning and ensures individualization and differentiation of learning taking into account the characteristics of students, their level of learning, abilities, etc. [Полат 2001, p. 15]. Therefore, the research topic is **relevant**, since today, among such a variety of methods and forms of foreign language teaching, it is important for teachers to choose the most appropriate one to meet the requirements of the new generation of educational standards in the present pandemic context. The use of electronic data visualization, characterized by a high communicative capacity and active involvement of students in educational activities, helps to adapt to modern social conditions because society needs people who quickly orient in the modern changeable world, who are proactive and independent.

The **research object** is the implementation of the principle of visualization in EFL teaching in higher educational institutions.

The **aim** of the article is to analyse the use of visual teaching aids in distance teaching of English during the Covid-19 pandemic.

To achieve this aim, it is necessary to solve the following **tasks**:

- to consider the notion of visual aids in language teaching;
- to analyze the available electronic data visual aids in teaching a foreign language to students;
- to describe the methodology and procedure of the empirical research;
- to conduct a survey on the use of visual aids in the process of teaching English to university students during distance learning.

Literature review. Visualization is considered to be the most important area for improving didactic aids. The spread of visualization processes is a consequence of globalization, the increasing intensity of contacts in various fields of activity, and the need for rapid understanding and interaction between people in an avalanche-like growth of information. Nobody doubts the transition from “text civilization” to “image civilization”. The use of visual media in foreign language learning is only gaining momentum.

Scholars believe that the process of visualization is the condensation of mental content into a visual image; being perceived, the image can be deployed and serve as a support for adequate thinking and practical actions [Білоусова 2017]. However, the main thing for teaching languages is that visualization of linguistic data stimulates students to generalization, clarification of perceived images, provides completeness and integrity of their perception.

Defining the goals of the visualization system in foreign language education, we rely on the concept of foreign language education, according to which, foreign language education has four aspects: cognitive, developmental, educational and training [Завгородня 2014].

Electronic data visual aids are created to transfer knowledge, to stimulate cognitive processes. Created means of knowledge representation not only help to master the material under study but also to generalize and remember the material under study, as well as promote its longer preservation in memory and easy reproduction.

When using electronic data to teach a foreign language using the visualization aids of teaching material, it is advisable to adhere to the following basic principles:

- cognitive visualization, which contributes to the formation of language concepts, development of critical and creative thinking in the subjects of the educational process;
- information saturation of language data, which assumes a compact presentation of the educational material so that the basic or necessary information could be presented to students in a visually perceptible form, which would be understandable, easily accessible and easily assimilated;
- visualization of language data, which increases the effectiveness of the lesson with students, helps to overcome formalism in learning, contributes to the development of their activity, creative cognitive activity, independence;
- “condensation” of language data as the process of knowledge reconstruction to make difficult and incomprehensible phenomena simple and clear, cumbersome

- some-compact, long – laconic, fragmentary – integral;
- completeness of language data, characterizing their quality and determining the sufficiency of data for decision-making;
- the integrity of perceiving language data presented in a particular form, which are always perceived as a whole in the unity of all the qualities and attributes, arises as conditionally reflex through the existing previous relationship between the visual, auditory, tactile stimuli received from the objects;
- validity and relevance of language data, which should reflect real objects with the necessary accuracy in constantly changing conditions;
- accuracy of language data, which determines the degree of their similarity with the real state of the object, process, phenomenon, etc.

Language teaching is distinguished by phonetic, lexical, grammatical, country studies, and socio-cultural knowledge. Thus, the means of visualization are the representation of grammar, lexical, socio-cultural and communicative knowledge in a convenient and accessible form in order to generalize and learn it more effectively.

Review of available electronic data visual aids for language learning. Nowadays, a great number of visualization means are used. Special attention is paid to visual aids using modern information technologies. The software that is employed in the process of teaching a foreign language includes a number of modern software tools for data visualization. For example, to create tables, graphs, charts and structural logic diagrams such software packages as MS Office, Google Tables, Office 365, etc. are most often used. Mind Maps can be created utilizing such software tools as Concept Draw MINDMAP Professional, Mind Manager Pro 6, Edraw Mind map, XMind, MindMeister, MindMup, MindJetMindmanager, iMind Map, as well as the website bubbl.us. The most common software products for creating screencasts nowadays are ScreenRec, CamStudio, QuickTime, Camtasia, ScreenFlow, Screencast-o-matic, Movenote and mobile screen recorder Mobizen Screen Recorder, etc. There are many services on the Internet to create infographics, in particular Draw.io Pro, Piktochart, Easel.ly, Visual.ly, Cacao, Adobe Spark, Canva Infographic Tool, Venngage, Piktochart. Educational films can be created using software tools such as Ezvid, BlueBerry Flashback Express Recorder, ScreenrScreenr, Rylstim Screen Recorder, iSpringSuite, GoAnimate, SparkolPro, PowToon, Moovly, Plotagon. Software tools for creating multimedia presentations include MSPowerPoint, Apache OpenOffice Impress, GooglePresentations, Prezi.com, etc. Regarding the creation of interactive virtual posters and whiteboards, it is worth noting such useful online resources as ThingLink, Padlet, WikiWall, Glogster, etc. We shall consider some of them in more detail.

Multimedia presentation. The advantage of a presentation as a visual aid is that knowledge is transmitted in the unity of image and text, engaging memory, thinking, imagination and personal meaning alongside the feeling. The information given in the presentation is perceived by a person as a mental constructor [Evans 2009].

Dynamic presentations, which are actually training videos based on multimedia presentation with ac-

tive use of animation effects, have recently become very popular. The use of multimedia presentations in foreign language lessons allows realizing a communicative approach to mastering all aspects of a foreign language: cognitive, educational, developing and training, and within the educational aspect – all kinds of speech activity: reading, speaking, listening, writing. The creation and use of multimedia presentations in foreign language lessons helps to implement a personalized approach to learning, provides individualization and differentiation of learning based on the abilities of students [Mustafoeva 2017]. Success in mastering knowledge and development of skills, in this case, is determined by the fact that the work with presentations makes it necessary to structure the material, to formulate it very briefly and concisely, to systematize the perceived information, presenting it in the form of a brief outline, in the form of basic concepts, rules, presented in the form of schemes.

Mind maps. In 60–70s of the 19th century, the American scientist Tony Buzan developed Mind Maps (mental maps, memory cards, intellectual maps). A mind map is a method of graphic expression of the processes of perception, processing and storage of information, solution of creative tasks, a tool for memory and thinking development, owing to which it is possible to use both hemispheres to form educational and cognitive competence of students [Casco 2009, p. 1]. Schemes (mind maps) operate on the same principle as our brain, which remembers key words and images, rather than sentences. The schemes allow recording and remembering associations and connections, arranging more information.

It is difficult to overestimate the potential of mind maps in foreign language teaching, they can be used to master the knowledge of socio-cultural orientation, the formation and improvement of grammar and lexical skills, as well as in the planning of monological expression and dialogue speech, to develop the skills of written speech [Leshchenko 2020]. The use of mind maps in English lessons provides an opportunity: to create motivation to learn a foreign language as a means of communication; to organize individual, group and collective activities of students; to construct educational content in accordance with the age characteristics of students; to implement a differentiated approach to learning; to organize independent work by students; to manage students' project activities; to teach students how to use dictionaries, reference books and other sources of written and oral information to find the necessary meanings, interpret vocabulary; to develop students' creative and intellectual abilities, thinking, memory, and intuitive abilities [Budd 2004, p. 38].

Tag clouds – Wordle. Wordle is a service for creating a word cloud from the entered text. On the site www.wordle.net, the teacher enters the text in a special field and the program generates a cloud reflecting the most frequently used words in large print. Any text can be turned into such clouds. The use of Wordle is beneficial for people who perceive most of the information through sight (visuals). The use of Wordle offers great opportunities for both teaching and learning a foreign language.

The use of this technique in foreign language classes is one of the means of increasing interest in learning, allows students to better master the spoken language, improve the level of language and speech training, helps to form and improve lexical skills. The technically simple implementation and free use of the application provides great opportunities for the distribution of this type of knowledge visualization means.

Another trend of electronic data visual aids is the creation of *educational films* using video recording software from a computer screen or mobile device. The iSpringSuite service (www.ispring.ru/ispring-suite) is particularly interesting. This program is notable for its simplicity and clarity. It allows recording instructions, lecture excerpts, overviews of educational programs, citing and commenting on samples of tasks, demonstrating the work on the computer screen and accompanying it with voice commentary. The iSpring Suite program extends the functionality of the PowerPoint program. The main features of the program are computer screen recording for creating training videos; combining presentation slides; developing and designing tests and surveys; creating dialogues; synchronizing audio and video files; creating interactive guides.

An *interactive whiteboard* is a learning tool that allows combining text, image, video, audio in an interactive form. Among the most common software products for interactive whiteboards today is RealTimeBoard, which is used for developing electronic educational resources, project management, brainstorming, organizing educational courses etc. RealTimeBoard is well suited for collaborative work. The commenting system – the minichat – allows leaving notes next to any item. It is very convenient to discuss certain modules and tasks. Owing to integration with Google Drive it is possible to work with documents and edit them conveniently and visually. The result of the work can be saved as a picture or a PDF file. The function of saving the board as a presentation is also implemented.

Research methodology. Research strategy helps the research procedure to be in agreement with the research objectives and determines how the research questions are answered. Babbie et al. classify research design types into empirical or non-empirical ones [Babbie 2007, p. 78]. According to the typology elaborated by Babbie et al., the present research is an empirical study, which makes use of a survey aimed at collecting primary data. The primary data for the study are obtained from the original research and consist of the information gathered by the researcher for the objectives of the study [Welman et al., 2009, p. 149].

Fink & Kosecoff state that a survey is a research technique which is useful in gathering information from a representative sample of individuals by means of communication happening either verbally or in the written form. In this research, a quantitative survey method has been adopted as a strategy for the second stage of the data collection [Fink & Kosecoff 2005].

According to Welman et al., a population is “the total collection of all units of analysis about which the researcher wishes to make specific conclusions” [Welman et al., 2009, p. 52]. In many surveys, the research

aim does not cover the whole target population, and there is an exclusion of some categories of the population. In this case, the target population after excluding some of its parts or units is called the survey population. The survey population for this study includes the students of the Faculty of International Economic Relations, Uzhhorod National University.

In this research, a self-administered questionnaire was used. Cooper and Schindler define a self-administered survey as follows: “An instrument delivered to the participant via personal (intercept) or non-personal (computer-delivered, mail-delivered) means that is completed by the participant without additional contact with an interviewer” [Cooper 2008, p. 711].

Despite having several advantages (questionnaires are not expensive, time-saving and adaptable), a self-administered questionnaire confronts the researcher with a problem since he/she has to rely on the lucidity and accuracy of the written questions rather than on her/his skills. Moreover, the response rate is usually lower in case of mailed or online questionnaires when compared to other modes (tet-a-tet interview) [Singleton & Straits 2010]. In addition, a self-administered questionnaire also allows for a non-response bias since if a respondent has any doubts, they cannot be clarified immediately.

The present research has made use of a structured questionnaire that allowed taking into consideration the information collection method, represented by an online questionnaire. An online survey to gather data was created with the help of the questionnaire service Google Forms which was developed in English. The study was conducted in April 2021. The respondents were sent an email with the link to the questionnaire as well as a letter with the explanation of the study purpose. In total, the study included 54 questionnaires filled by respondents, all of which were complete and therefore valid and taken into consideration in the present study.

The designed questionnaire makes use of the Likert scale with the aim to enable respondents to classify their viewpoint on each of the questions. According to P. Subedi, the Likert scale is usually utilized to measure the respondents' attitude who are provided with a range

of responses to a given question or statement [Subedi 2016]. The Likert scale questionnaire requires a respondent to mark his/her degree of agreement or disagreement with each given statement. Consistently, 5 categories of response are included in the questionnaire ranging from “strongly disagree” to “strongly agree”. Thus, the Likert scale of 10 items was devised to measure the students' attitude to the use of visual aids during English classes.

The handling of data comprises the process of compiling, systematizing and coding the collected data by the researcher. The data were captured electronically by the Typeform tool as soon as the respondents finished filling in their questionnaires online. The gathered data were then reorganized by the researcher into a Microsoft Excel spreadsheet, which was continuously updated throughout the data collection period. Coding is assigning a code usually a number to each possible response to each question. The format of all the questions is defined as closed-ended questions which were attached numbers, thus the questions were pre-coded (thus, “strongly disagree” option was given number 1, while “strongly agree” was given number 5). The data in the present study were analyzed utilizing both descriptive and statistical methods. Descriptive statistics describes or summarizes the data which were obtained for a group of separate units of analysis.

The following descriptive statistics methods were applied in the research:

- frequencies, which denote the number of times a certain response was given or percentage of responses to a certain question [Zikmund 2003].
- mean, which is the sum of the values for all observations of a variable divided by the number of observations. A mean is used to calculate the central propensity – i.e., the average response of respondents.
- median, which is considered to be the numerical center of the data set with precisely as many measurements above it as below it, thus, it divides the obtained data into two [Leedy&Ormrod 2010, p. 265].

Research results. The analysis of answers given to the statements is presented in Table 1 which shows the mean and median for each statement.

Table 1. *Students' attitude to visual aids in language teaching*

	Statements	Mean	Median
1	I perceive language material better via electronic data visual aids	3,907	4
2	Electronic data visual aids promote my memorizing language material	3,555	4
3	Electronic data visual aids do not benefit my understanding and memorizing language material	2,037	2
4	Electronic data visual aids promote my understanding and memorizing language material only in combination with other teaching aids	3,703	4
5	Electronic data visual aids enhance my listening skills	2,962	3
6	Electronic data visual aids boost my reading skills	3,518	4
7	Electronic data visual aids improve my writing skills	3,222	3
8	Electronic data visual aids enhance my speaking skills	3,870	4
9	Electronic data visual aids increase my learning motivation during distance learning	3,740	4
10	Electronic data visual aids help me to improve my overall academic performance during distance learning	3,629	4

The data of the table clearly show that the mean scores for questions fall in the range with the highest mean score of 3,907 (Statement1) and the lowest 2,037 (Statement 3). Statements5 and 7 demonstrate the me-

dian value of 3 which means the respondents were quite unanimous in their responses.

The frequency distribution for statements is presented graphically in Figure 1.

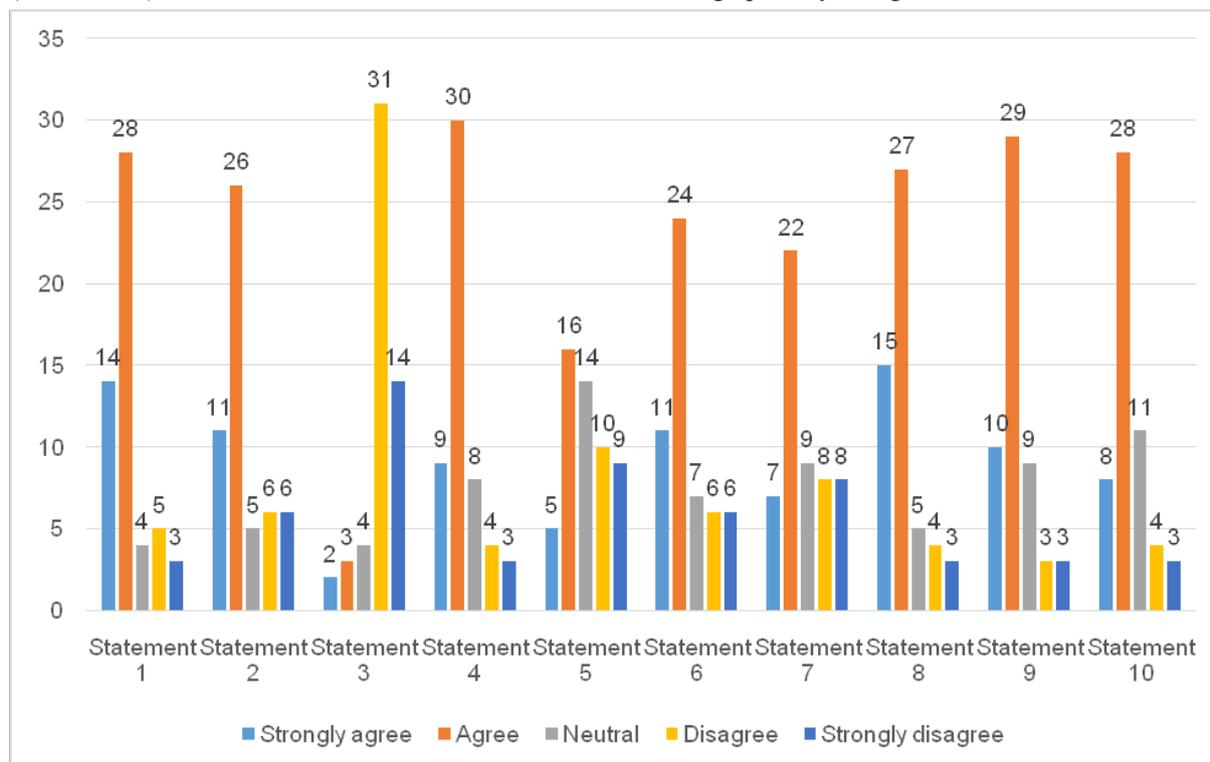


Fig. 1. Frequency distribution for students' answers to statements

Table 2 represents the percentage of Likert scale answer options to each question. According to the presented data, the respondents gave a total of 77,7% of positive answers to the first statement. Thus, they strongly agree or agree that they grasp language material better via visual aids. The respondents' attitude to the statement affirming that visual aids promote memorizing language material yielded the following results: 48,1% of respondents agree with the statement while 20,3% of the respondents strongly agree with it. The statement that visual aids do not benefit understanding and memorizing language material is confirmed by a total 83,3% negative responses (57,4% disagree and 25,95 strongly disagree). The data clearly manifest that the majority of the survey participants (55,5% agree

and 16,6% strongly agree) are inclined to think that electronic data visual aids are useful only in combination with other teaching aids.

The next four statements concerned the students' attitude to the potential of visual aids to develop four language skills: listening, reading, writing, and speaking. The statement that visual aids enhance students' listening skills is positively affirmed by a total 38,8% while 25,9% of respondents have chosen to be neutral. 64,7% of students affirm that visual aids boost their reading skills. A total of 53,6% of the respondents (12,9% strongly agree and 40,7% agree) state that visual aids improve their writing skills. A total 77,7% of the surveyed students agree that visual aids enhance their speaking skills.

Table 2. Percentage of the respondents' Likert scale answer options

Statements	Likert Scale Answer Options (Percentage)				
	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Statement 1	25,9	51,8	7,4	9,2	5,5
Statement 2	20,3	48,1	9,2	11,1	11,1
Statement 3	3,7	5,5	7,4	57,4	25,9
Statement 4	16,6	55,5	14,8	7,4	5,5
Statement 5	9,2	29,6	25,9	18,5	16,6
Statement 6	20,3	44,4	12,9	11,1	11,1
Statement 7	12,9	40,7	16,6	14,8	14,8
Statement 8	27,7	50	9,2	7,4	5,5
Statement 9	18,5	53,7	16,6	5,5	5,5
Statement 10	14,8	51,8	20,3	7,4	5,5

The last 2 statements concern the respondents' attitude to the use of visual aids during the pandemic of coronavirus. Their aim was to determine whether the teacher's employment of visual aids during distance learning is beneficial for the students' learning motivation and whether it positively influences their overall academic performance. The statistical analysis demonstrates that a total 72,2% of the respondents agree with the statement that visual aids increase their learning motivation during distance learning. The analysis of responses given to the last statement proves that visual aids boost the students' overall academic performance since 66,6% of respondents agreed with the statement.

Summarizing the respondents' attitude to the use of visual aids in the process of teaching English, the findings demonstrate the highest level of positive answers for the statements proving that language material is better perceived via electronic data visual aids (mean=3,907); visual aids particularly enhance students' speaking skills (mean=3,870); and electronic data visual aids positively influence students' learning motivation during distance learning (mean=3,740). In addition, respondents believe that visual aids work better in combination with other teaching aids (mean=3,703).

Limitations of results and conclusions. This research was performed with the help of a limited sample (54 respondents). Therefore, the results may not be generalized beyond the collected sample and they are feasible only within the given research. In addition, the information for this study was obtained from one source (students of the Faculty of International Economic Relations, UzhNU) with the help of one instrument (a

questionnaire). Although the above-mentioned aspects hinder the possibility to generalize the results, they concurrently increase their practical relevance. In addition, even though the postulated hypothesis was considered in some previous research, experimental studies were expedient to be implemented in order to gain a more profound understanding as to the relationships between changeable factors in this research. The appraisal of respondents' concepts and attitudes can purposefully be explored and future studies may minimize the likelihood of the typical method incongruity by gathering data from various sources. Despite the aforementioned restrictions, the research offers a comprehensive analysis of applying visual aids in EFL teaching. The application of this research design to other teaching aids is also recommended for future research with the aim of gaining more extensive knowledge on the topic.

Summing up, the system of electronic data visual aids aims at realizing the learning, educational, development and cognitive potential of foreign language teaching through visualization of information and visualization of knowledge. The development of visual aids is based on the principles of purposefulness, functionality, comprehensiveness and cognitive visualization.

The use of electronic data visual aids in foreign language teaching provides ample opportunities not only for acquaintance with facts, processes and cultural events, transfer of language knowledge in an accessible and easily assimilated form but also for developing language skills including reading, listening, speaking and writing as well as increasing students' motivation to language learning during distance learning.

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ЕЛЕКТРОННІ ЗАСОБИ ВІЗУАЛІЗАЦІЇ ПІД ЧАС ДИСТАНЦІЙНОГО НАВЧАННЯ АНГЛІЙСЬКОЇ МОВИ ЯК ІНОЗЕМНОЇ В УМОВАХ ПАНДЕМІЇ КОРОНАВІРУСУ

Анотація. Статтю присвячено вивченню використання засобів візуалізації під час дистанційного навчання англійської мови у закладах вищої освіти в умовах пандемії коронавірусу. Метою статті є аналіз доцільності використання електронних засобів візуалізації в дистанційному навчанні англійської мови в період пандемії Covid-19.

Особлива увага приділяється поняттю наочних засобів у навчанні іноземних мов та принципам їхнього застосування. Визначено, що система засобів візуалізації, які використовуються в навчанні іноземної мови, спрямована на реалізацію навчального, виховного, розвивального і пізнавального потенціалу навчання за допомогою електронної візуалізації інформації й наочного представлення знань. Використання засобів візуалізації ґрунтується на принципах цілеспрямованості, функціональності, комплексності та когнітивної наочності.

У процесі дослідження проаналізовано наявні засоби візуалізації, які використовуються під час навчання студентів іноземної мови. Описано програмне забезпечення, що дає змогу представити навчальний матеріал в організованому, компактному й концентрованому вигляді та, таким чином, зробити складні мовні явища зрозумілими і доступними для запам'ятовування та засвоєння студентами. Представлено електронні засоби візуалізації для вивчення та засвоєння мовних явищ з використанням таких засобів наочності, як мультимедійні презентації, інтелект-карти, навчальні фільми, інфографіка, інтерактивні дошки тощо.

Проведено емпіричне дослідження у формі онлайн-опитування студентів щодо використання засобів візуалізації в процесі викладання англійської мови під час дистанційного навчання у ВНЗ в умовах пандемії коронавірусу. Результати дослідження доводять, що використання електронних засобів візуалізації у навчанні англійської мови відкриває широкі можливості не тільки для ознайомлення з мовними фактами, передавання мовних знань у доступній і легко засвоюваній формі, розвитку мовленнєвих умінь та навичок, але й підвищення мотивації студентів до вивчення іноземної мови у складних навчальних умовах, спричинених пандемією.

Ключові слова: засоби візуалізації, електронна візуалізація даних, навчання англійської мови як іноземної, заклади вищої освіти, дистанційне навчання, пандемія коронавірусу.

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