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VISUALIZATION OF DISTANCE LEARNING

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The article is devoted to highlighting the current problems of creating visual support for distance learning of pedagogical workers in the conditions of postgraduate education. The current experience in training teachers to create a visualization of distance learning of teachers in postgraduate education is considered. Attention is paid to the modern problems of distance learning, the experience of organizing advanced training courses, implementation of thematic, author's courses for teachers of general secondary education institutions and vocational pre-higher education institutions is described. A description of the content of the training of teachers on the author's remote professional development courses is provided. A description of the preparation of a visual series for remote training of teachers in the postgraduate education system is given. Features of the use of modern digital tools and technology for creating electronic materials for the organization of distance learning are considered. A description of the use of video conferencing systems in distance learning is provided, examples of creating video materials for conducting distance classes are described. The experience of organizing distance classes is described and a description of the types of classes in distance learning is provided.

The list of problems of the pedagogical community in the process of organizing distance learning in crisis conditions is presented. The problems and needs of professional improvement of teachers, which can be solved during the period of professional development in the system of postgraduate education, are singled out.

The results of research in the post-graduate education system are described, which demonstrate the solution to the problems of distance learning visualization based on the author's professional development courses. The meaningful content of distance, network, electronic training of teachers, the selection of effective technologies for the preparation of visual support for conducting classes in a distance format are recognized

Keywords: distance learning, teaching staff, postgraduate education, visualization of distance learning, digital tools

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1. Introduction

In times of crisis, in wartime conditions, the attention of many scientists is focused on the problems of implementing distance learning in educational institutions of various levels. Special attention of pedagogical education workers is paid to the search for effective and efficient forms of distance learning organization. The practice of organizing distance learning in recent years demonstrates quite significant progress in distance learning. But at the same time, there are many problems that are gradually being solved by the post-graduate education system, namely the thematic advanced training courses, which are held as per the order of individual educational institutions, territorial sectors of education, departments of education and science, etc. Among the many problems of teachers who are forced to work in a distance format during wartime is the problem of using visual support for learning and preparing electronic, interactive, video materials for high-quality distance learning in order to obtain significant educational results for all applicants for education.

They need more detailed coverage of the specifics of teacher training for the use of digital tools in the process of preparing visual support for distance learning. The consideration of current problems of visualization features of distance education of pedagogical workers will reveal positive domestic experience on the selected problem, as well as the review of technologies for the preparation of visual support for distance learning with the help of modern digital electronic educational materials from various disciplines in the process of professional development in the conditions of postgraduate education.

2. Literary review

A review of the scientific-theoretical and methodical literature of the specified problem revealed the works of many scientists who consider the problems of distance learning organization [1–3]. Researchers draw attention to the fact that distance learning is an educational process, in which a significant part of teaching is conducted by someone distant in space from those who study [4]. Foreign scientific researchers note that availa-

bility of information sources, individualization of learning, a convenient counseling system, democratic relations between the tutor and the student, a convenient schedule and place of work, etc. become important in distance learning [5, 6]. Some researchers believe that distance learning is a systematically organized educational process that should carry out ongoing joint autonomous learning, in which students are in the center of attention [7]. Scientists determine that distance learning can be carried out in several modes, which differ in the goals and tasks of training, the features of presentation of information materials, which can take place in synchronous mode and asynchronous modes [8]. At the same time, researchers draw attention to the fact that it is postgraduate education that is able to carry out powerful activities for the preparation of teachers for the organization of distance education [9]. The attention of many domestic researchers is focused on the use of visual learning aids in distance education [10, 11].

In the studies of scientists, it is noted, that the visualization of educational material becomes even more relevant in the conditions of distance learning and in the period of wartime in the activities of educational institutions [12]. The analysis of literary sources made it possible to reveal that the issue of the development of distance learning of pedagogical workers in the conditions of postgraduate education is relevant. Highlighting the problems of distance learning visualization technologies will reveal positive domestic experience and provide methodological recommendations for the further use of visual support for learning in distance education.

3. Research aim and tasks

The aim of the study is to substantiate the peculiarities of the training of pedagogical workers for the creation of visualization of distance learning in the conditions of postgraduate education.

To achieve the goal, the following tasks were set:

1. To determine the requirements for visualization of distance learning in educational institutions of various types.
2. To specify the needs and content of the training of teaching staff for the visualization of distance learning in postgraduate education.
3. To consider the modern experience of visualization of distance learning of pedagogical workers in the conditions of open postgraduate education.
4. To determine the ways and prospects of visualization of distance learning in postgraduate education.

4. Materials and methods

The materials of the author's distance course of the Ukrainian Open University of Postgraduate Education were used to conduct this research. The participants of the study were students of six professional development courses of the author's course "Digital technologies in teaching art" of associate professor L.G. Kondratova, which were held on the basis of the Ukrainian Open University of Postgraduate Education. The total number of participants is 320 people, teachers of art disciplines of general secondary education institutions, teachers of higher education institutions. Informed consent was obtained from the study participants during the training process.

To conduct the research, methods of practical mastery of web services were used to prepare a visual series for conducting classes in a remote format, namely: video presentations, educational videos of various types, interactive tasks, etc. Methods of summarizing results, summarizing the experience of training participants, methods of discussing urgent problems in the organization of distance learning, methods of comparison with examples, methods of reflection, etc., were also used to conduct individual research during distance learning with pedagogical workers.

5. Research results and their discussion

It is known, that students perceive and remember visual information better due to systematization, visual appeal, and conciseness. Switching of attention and operational processing of information, advantage of perception of graphic information, text, video, diagrams, graphs, etc. Visualization of educational material becomes one of the methods of reproduction, analysis, synthesis, systematization of knowledge, which affects the development of key competencies of the student. Recently, with the development of digitalization of education, the requirements for the presentation of visual information in the educational process have changed. The term "visualization" comes from the Latin *visualis* – visual perception, visibility, and the process of visualization, performing an illustrative function, helps to summarize mental content into visual images. Therefore, the means of visualization are understood not just as illustrative materials, but as a complete system of transmission of visual information, which allows you to manage the information, presented on the screen.

Visualization during distance learning allows you to intensify the educational process, activate educational and cognitive activities, develop critical and visual, figurative thinking, transfer knowledge based on the recognition of visual images, which in general allows not only to supplement the teacher's explanation, but to encourage mental activity, cognitive etc.

In the conditions of distance learning, giving a lecture, presentation of educational material takes place in a traditional template form. The presentation of new material in the form of a teacher's monologue online, which focuses the attention of education seekers, is most often observed. As the researchers note, in order to solve the problem, scientists pay attention to the need to present educational materials using different information channels, which are obtained depending on the content of the educational material and the way it is presented [13]. According to the researchers, for the successful implementation of the educational process in remote mode, it is necessary to keep the attention of the virtual audience throughout the lesson using visual objects, viewing educational videos, posters, presentations, diagrams, graphs, mental maps and other materials in a visual format [14]. An effective means of visualizing educational material is the use of infographics, scribing, screencasts, educational videos, which reflect key elements in the educational process with the help of graphic elements, icons, drawings, symbols, etc. [15].

Distance learning, which has recently gained great popularity in the post-graduate education system, is de-

defined by researchers as the interaction of a teacher and students with each other at a distance, which highlights all the components inherent in the educational process, which include: purpose, content, methods, organizational forms, learning tools, specific means of Internet technologies [13]. Synchronous mode is considered as interaction between subjects of distance learning, during which all participants are simultaneously in the web environment of distance learning (chat, audio, video conferences, social networks, etc.), asynchronous mode - interaction between subjects of distance learning, during which participants interact with each other with a time delay, using e-mail, forums, social networks, etc. in the form of webinars, video conferences and chats, forums – asynchronously.

In the conditions of postgraduate education, for the organization of distance learning, a teacher who is a curator-tutor develops a distance course, which is defined by researchers as an educational activity, planned by the

teacher for the processing and assimilation of structured information, and takes place on the basis of educational and work plans. Distance learning programs are based on a modular or thematic principle, whereby each separate course consists of several independent educational modules (topics), and the educational and thematic plan of such a course consists of interconnected components, such as: content (lectures); consolidating (practical classes); controlling (tests and tasks) [15, 16].

The need of the hour is the preparation of teachers to implement the visualization of distance learning for conducting effective lessons. According to the results of research, carried out at advanced training courses during 2021–2022, the most urgent issues of distance learning organization were determined. Based on the conducted research (Fig. 1), more than three hundred respondents noted that the following services, such as Google Meet, Zoom, Microsoft Teams, Viber, are most often used by teachers to organize distance lessons.

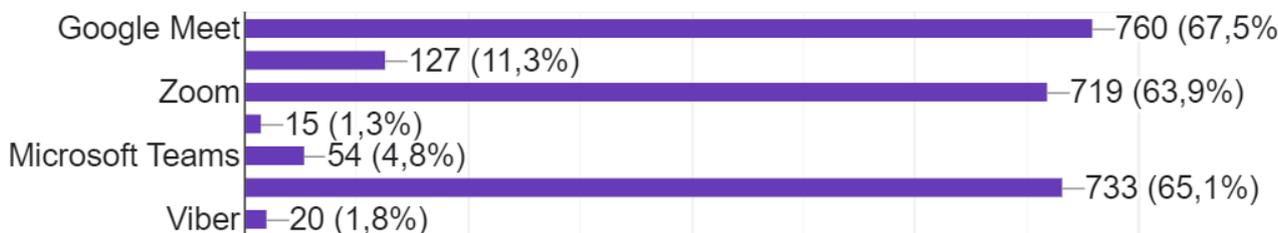


Fig. 1. Experience of using services for the organization of distance learning

The teachers also noted (Fig. 2) that they and their colleagues use Viber, e-mail, modern messengers, educational environment Google Classroom, etc. to communicate in distance learning.

During the survey, which revealed the existing experience of preparing visual support for the

educational process (Fig. 3), the pedagogical workers mainly indicate such types of visual support as: presentation (45.6 % of the respondents), educational video (32.8 % of the respondents), interactive tasks (12.6 % of the respondents) and other means of visualization, etc.

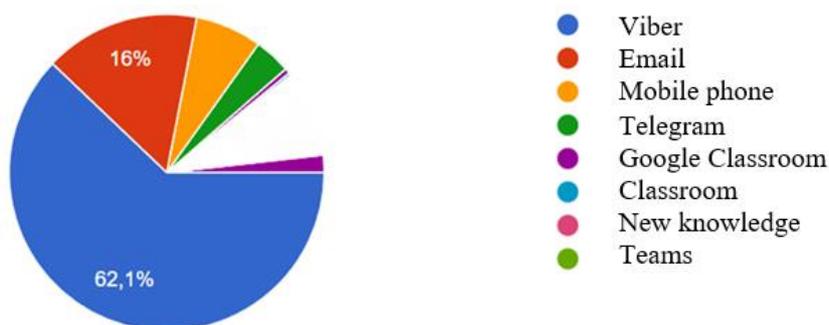


Fig. 2. Experience of using services for the organization of distance learning

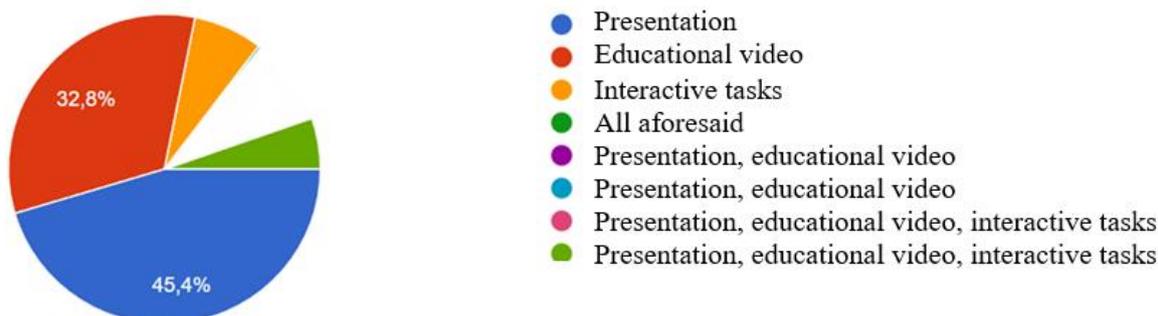


Fig. 3. Experience of preparing visual teaching aids during the organization of distance learning

When asked which topics for professional development in the field of digital technologies require the most attention, the respondents answered that they would like to study in more detail the technology of creating educational videos, creating digital content, using graphic editors, creating video lessons, creating a system of effective educational tasks in a digital educational environment, creating interactive games and tasks, interactive exercises, practical quests, platforms and web services, Sway office presentations, etc.

In order to prepare pedagogical workers for the implementation of visualization of the educational process, the author's special courses and flash courses

were developed at the Ukrainian Open University of Postgraduate Education (Fig. 4).

The active development of digital technologies provides an opportunity for the pedagogical community to constantly improve digital competence and self-improve professionally. The special course "Visualization of distance learning" was developed by L. G. Kondratova, associate professor of the department of open educational systems and ICT, candidate of pedagogical sciences. Based on the results of studying materials of the special course and performing practical tasks, students will develop professional and pedagogical, digital competence.

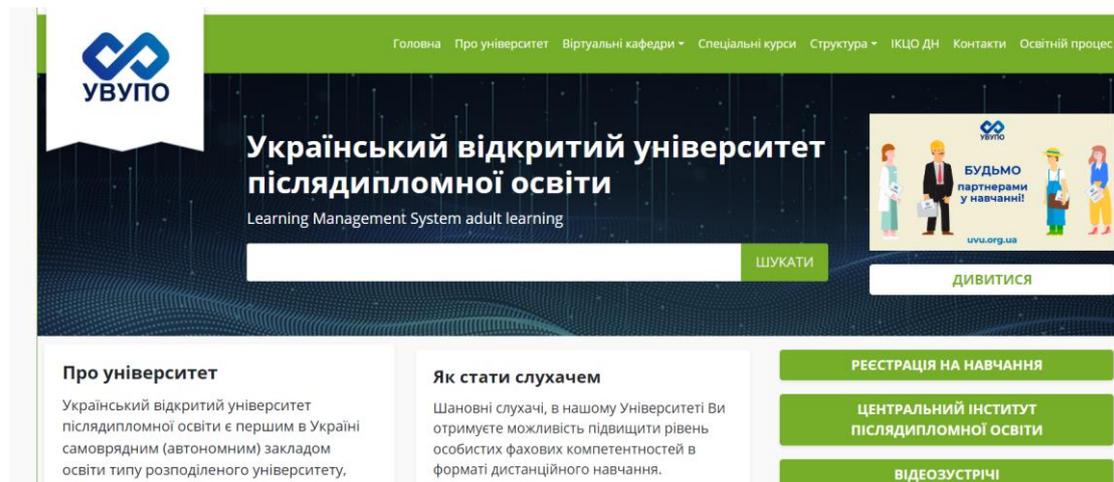


Fig. 4. Author's courses at UOUPE

The content of the training of teaching staff on promotion courses for the implementation of visual support of the educational process at the Ukrainian Open University of Postgraduate Education includes three topics, the mastery of which is intended to allow you to acquire practical skills in the implementation of visual support for distance learning based on the capabilities of modern web services, cloud services, and mobile technologies etc. The special course "Visualization of distance learning" (Fig. 5) is designed to improve the qualifications of teachers of general secondary education institutions and institutions of vocational pre-university education, the purpose of which is: to develop digital and professional competence in participants, to help form the skills of visual support for distance learning using modern cloud and web services and digital technologies.

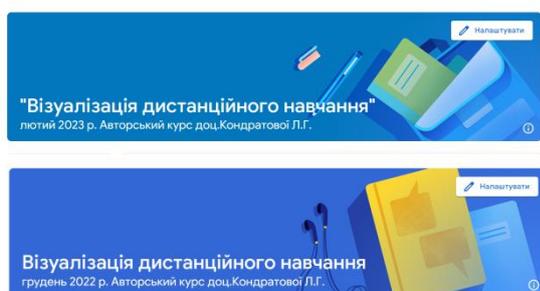


Fig. 5. Author's course of L.G. Kondratova at UOUPE

The program consists of 3 topics, which are calculated for 10 academic hours each, and is implemented in

the distance form of the organization of the educational process. The study time budget is 30 hours or 1 ECTS credit (taking into account independent work). The result of effective training under the program is the acquisition of practical skills, related to the visual support of distance learning, namely the creation of interactive and video presentations, interactive posters, educational videos based on the capabilities of modern web services, cloud services, mobile technologies, as well as the acquisition of experience in organizing video meetings during blended and distance learning in the conditions of a general secondary education institution and an institution of vocational pre-university education.

During the author's special course "Visualization of distance learning", all practical tasks are performed in the virtual environment of Google Classroom. The materials of the special course include video lectures, presentations, instructions for completing tasks, interactive exercises, tests, reflections, etc. The Google Classroom system allows you to organize effective feedback by setting up a notification system, handing in assignments, and receiving private consultations for each task.

In order to organize distance learning according to the special course program, the curator-tutor, in accordance with the requirements, specified in the educational professional program, develops the distance learning trajectory of a group of students, adds webinars to the plan-schedule of the distance course, organizes chat discussions, establishes a relationship with students based on mobile applications, correspondence, etc. Dis-

tance learning according to the program of the author's course "Visualization of distance learning" includes not only independent familiarization of students with the educational materials of lectures, but also specific forms of pedagogical communication, cooperation, co-creation. All course tasks in the form of certain independent practical work of course participants are aimed at self-development, self-improvement, raising the professional level of teachers and their acquisition of professional, special competencies.

Visualization of distance learning, ways and perspectives of it in postgraduate education is a very relevant topic. The specificity of the pedagogical activity of teachers requires a specific content of a distance course and various practical forms of work that will be able to meet the educational needs of teachers in professional development.

In the process of analyzing the sources, it was found, that the visualization of distance learning of teachers is considered one of the methods of reproduction, analysis, synthesis, systematization of knowledge, which affects the development of key competencies of those who study. Visualization during distance learning allows for the intensification of the educational process, the activation of educational and cognitive activities, the development of critical and visual, figurative thinking, and the transfer of knowledge based on the recognition of visual images.

The study of the problems of visualization of distance learning of teachers in postgraduate education made it possible to identify innovative trends and needs in distance learning, to outline the ways and perspectives of visualization of distance learning. The conclusions, obtained as a result of the work, do not pretend to be a comprehensive solution to the problem of visualization of distance learning of teachers in postgraduate education, the continuation of work on the problem is possible in the direction of studying the content of distance learning, improving the programs of author's, problem-based, thematic courses with use in the conditions of postgraduate education.

The limitations of this study are the use of purely pedagogical topics, the focus of actions on meeting the needs of teachers. The issue of creating tasks and educational videos for the organization and conducting of classes in a distance format requires further research.

6. Conclusions

So, the problem of visualizing the distance learning of teachers in postgraduate education in the context of educational reforms is quite relevant. The study of actual problems of visualization of distance learning of teachers in the conditions of postgraduate education made it possible to draw the following conclusions:

1. The determination of the problems of visualization of distance learning in educational institutions of various types made it possible to identify the advantages of visualization of distance learning, which include: high

informativeness, accessibility, cost-effectiveness, effectiveness of postgraduate educational activities, which require less time and energy to acquire knowledge, are much more mobile and comfortable, than other forms of education. The use of distance learning visualization in educational institutions of various types allows for the intensification of the educational process, the activation of educational and cognitive activities, the development of critical and visual, figurative thinking, and the transfer of knowledge based on the recognition of visual images.

2. The study of the problems of the need and content of the training of pedagogical workers for the implementation of visualization of distance learning in postgraduate education made it possible to determine that the relevant topics for improving skills in the field of visualization of distance learning are the issues of technology for creating educational videos, creating digital content, using graphic editors, creating video lessons, creating a system of effective educational tasks in a digital educational environment, creating interactive games and tasks, interactive exercises, practical quests, platforms and web services, Sway office presentations, etc.

3. The consideration of the modern experience of distance learning visualization of pedagogical workers in the conditions of open postgraduate education made it possible to identify relevant flash courses and author's special courses that are designed to study the problems of learning visualization, which will allow solving the problem of training teachers to implement a high-quality visual series for its further use in distance learning.

4. The study of actual problems of visualization of distance learning of teachers in postgraduate education made it possible to identify innovative trends and needs in distance learning, to outline the ways and perspectives of visualization of distance learning. The conclusions, obtained as a result of the work, do not pretend to be a comprehensive solution to the problem of visualization of distance learning of teachers in postgraduate education, the continuation of work on the problem is possible in the direction of studying the content of distance learning, improving the programs of author's, problem-based, thematic courses with use in the conditions of postgraduate education.

Conflict of interest

There are no conflicts of interest in the article. The author declares that she has no conflict of interest in relation to this study, including financial, personal, authorship, or any other conflict of interest that could affect the study and its results, presented in this article.

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Data availability

The manuscript has no associated data

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