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SKILLS OF WORKING WITH PHOTO AND VIDEO MATERIALS AS A COMPONENT OF TEACHER'S ICT COMPETENCE IN DISTANCE LEARNING

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The article deals with the urgent problem of increasing the level of teacher's information, communication and technological competence in the conditions of the use of all levels of distance learning technologies in educational institutions. The article considers the essence of the concept of teacher's ICT competence and establishes that its necessary component is the ability to present educational material, using the necessary ICT tools for this.

The results of a survey of teachers of the Ukrainian language and literature, as well as physics, astronomy and computer science, conducted during the postgraduate training courses for teachers organized at Zhytomyr Ivan Franko State University during September-December 2021, are presented. As a result of the survey, it was found out which teaching materials have been used by the teachers in the process of distance learning, and what with difficulties they meet during the lessons in a distance format. It was found that the majority of teachers have used ready-made presentations, illustrative and video materials taken from the Internet, and the greatest difficulties for them were the creation of their own photo or video materials and multimedia presentations.

It is proposed to hold thematic classes with teachers during their postgraduate training courses. The content of the classes is given, namely: the peculiarities of working with Internet catalogs of photo and video files; the review of the most popular online services for creating infographics, editing raster and vector images; the technology of preparation and installation of video materials; the artistic approach to building the composition of the frame and the psychology of its perception by the viewer.

Thus, the implementation of the proposed approaches in the practice of the institutions that carry out postgraduate education of teachers will contribute to the development of ICT competence in the

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teachers, which will positively affect the quality of conducting educational and extracurricular activities in the conditions of distance learning. The perspective of further research is to study the possibilities of increasing the level of ICT competence in the teachers by using online learning management systems.

Key words: teacher's ICT competence, distance learning, photo and video materials, multimedia presentation, online services for editing raster and vector images, video editing.

НАВИЧКИ РОБОТИ З ФОТО- ТА ВІДЕОМАТЕРІАЛАМИ ЯК СКЛАДОВА ІКТ-КОМПЕТЕНТНОСТІ ВЧИТЕЛЯ В УМОВАХ ДИСТАНЦІЙНОГО НАВЧАННЯ

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У статті порушується нагальна проблема підвищення рівня інформаційно-комунікаційно-технологічної компетентності вчителів в умовах застосування в освітніх закладах усіх рівнів технологій дистанційного навчання. Розглянуто сутність поняття ІКТ-компетентності вчителя та визначено, що її необхідною складовою є здатність презентувати навчальний матеріал, застосовуючи для цього необхідні засоби ІКТ.

Наведено результати опитування вчителів української мови та літератури, а також фізики, астрономії та інформатики, проведеного на курсах підвищення кваліфікації вчителів, які були організовані в Житомирському державному університеті імені Івана Франка протягом вересня-грудня 2021 р. В результаті опитування з'ясовано, які саме навчальні матеріали використовували вчителі в процесі дистанційного навчання, та які труднощі виникали в них під час проведення занять у дистанційному форматі. Встановлено, що більшість вчителів користувалися готовими презентаціями, ілюстративними й відеоматеріалами, взятими з Інтернету, а найбільші труднощі в них викликало створення власних фото- або відеоматеріалів та мультимедійних презентацій.

Запропоновано проведення з учителями тематичних занять під час проходження ними курсів підвищення кваліфікації. Наведено зміст занять, а саме: особливості роботи з інтернет-каталогами фото- та відео-файлів; огляд найбільш популярних он-лайн сервісів для створення інфографіки, редагування растрових та векторних зображень; технологія підготовки і монтажу відеоматеріалів; художній підхід до побудови композиції кадру та психологія його сприйняття глядачем.

Таким чином, впровадження запропонованих підходів у практику закладів, що здійснюють післядипломну освіту педагогів, сприятиме розвитку ІКТ-компетентності вчителів, що позитивно вплине на якість проведення навчальних та позанавчальних заходів в умовах дистанційного навчання. Перспективою подальших досліджень є вивчення можливостей підвищення рівня ІКТ-компетентності вчителів шляхом використання он-лайн систем управління навчанням.

Ключові слова: ІКТ-компетентність вчителя, дистанційне навчання, фото- та відеоматеріали, мультимедійна презентація, он-лайн сервіси для редагування растрових та векторних зображень, відеомонтаж.

Introduction of the issue. An important task of modern pedagogues is the unification of information and communication technologies (ICT) and the traditional teaching methods. In the conditions when educational institutions of all levels are actively mastering distance learning technologies, there is an urgent need to increase the level of information, communication and technological competence in the teachers. A teachers' ICT competence is a

complex concept and includes a certain set of their knowledge, abilities, skills, personal attitudes and value orientations [5; 6; 10] in the field of ICT, which enable to independently and responsibly use the mentioned technologies in practice to solve ones professional problems, to meet different needs and to learn throughout life [2: 11, 46].

According to UNESCO international standards, a necessary component of a teacher's ICT competence is the ability to

present educational material, using for this purpose pertinent ICT tools [3: 57, 78]

- to use for presenting educational material various presentation software tools, videos, animations, computer models, etc.;

- to prepare computer presentations, using various types of computer design and taking into account the peculiarities of human perception of visual information;

- to use graphic editors to prepare simple images;

- to use collage and infographics in order to make the presentation clearer and increase the interest in the learners [7; 9].

There is a radical transformation of the communicative sphere of the human being, which is realized against the background of globalization processes: with the advent of the Internet, mobile communications, significant increase and improvement of transport means exponentially intensifies psychological lability and mobility in space and time. The information boom is due primarily to repeated reproduction and reiteration of already known information, rather than an increase in the amount of new knowledge. For the first time in human history, ideas and technologies are transformed faster than the generations of people. Here we have the paradigm of specialization and differentiation in labour activities reveals a serious problem for professional education, which cannot adequately respond to the rates of technological development of modern world, since the content of education undergoes fundamental changes over the course of five-ten years of professional training, revealing the problem of the "half-life of specialist's competence": the average annual growth rate in new knowledge on our Planet is 4-6%, therefore, a specialist should receive about 50% of professional knowledge after graduating from relevant educational institution. At the same time, the amount of time required to update professional knowledge for specialists with higher education is 28%

of the total amount of time that an employee has at his disposal during the entire working period [8].

In the conditions of virtual communication during distance learning, special attention should be paid not only to the content, but also to the design of educational materials. The presentation should be interesting, well-illustrated and informative, which improves the perception of information and increases the motivation in the learners to study the subject.

That is why the development of the teacher's ability to work with photo and video materials using ICT is a very urgent task. In modern conditions, computer equipment, various mobile devices and software, and connection to Internet resources have become available to most participants in the educational process. However, today there is still a contradiction between teachers' technical ability to create a high-quality presentation of educational material and their insufficient ICT competence.

Current state of the issue. Many domestic and foreign scientists have paid attention to the problem of forming teachers' ICT competence, in particular, V. Bykov, O. Bilous, I. Vorotnikova, J. Winn, R. Gurevich, V. Hrytsenko, N. Morse, O. Ovcharuk, S. Rakov, M. Rus, M. Selinger, O. Spirin, L. Chernikova, and others. Thanks to their research, the essence of the concept of teacher's ICT competence, its components, structure, levels have been revealed, as well as the model of teacher's ICT competence has been developed [1]. The means for the formation of ICT competence have been proposed both in the process of the prospective teachers' education and during the postgraduate training.

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technologies. However, despite the weighty results of the mentioned studies, it must be stated that in the papers of the scientists, insufficient attention is paid to the development of such a component of teacher's ICT competence as the skills of working with photo and video materials, which is quite relevant in the context of distance learning.

Research methods. A number of methods have been used to solve the research tasks: theoretical ones – the analysis and synthesis, systematization, generalization of scientific and pedagogical literature; the empirical ones – the questionnaires, pedagogical experiment; the statistical methods for mathematical generalization of experimental research results.

The aim of the research. The purpose of the article is to highlight the possibilities of increasing the level of ICT competence in the teachers by developing their abilities and skills in working with photo and video materials concerning further practical use.

Results and discussion. Pedagogical experience of conducting classes in the conditions of distance learning has shown that the application of high-quality illustrative material, multimedia technologies, which can be used to create educational content accompanied by audio and visual effects, significantly expand the teacher's opportunities to raise visibility, to increase the quality of teaching and enhancing the interest of the learners [4: 149].

It should be noted that the ability to work with photo and video materials using ICT can be useful to a teacher not only during the postgraduate training, but also for the presentation of extracurricular activities or reporting on different types of one's professional activity.

In general, the teacher can use illustrative and video materials created by ICT

– for the development of educational, instructive and other materials;

– to create and conduct multimedia presentations for the purpose of visualizing the phenomena and processes being studied;

– when creating static or animated images to visualize the content of tasks;

– to demonstrate experiments in teaching natural sciences;

– when conducting laboratory work using a computer;

– when developing educational or control online tests;

– in the process of running one's blog or creating a site for posting various information on the subjects.

Of course, the active use of ICT in the distance learning process requires the teachers and learners to have smartphones and at least one device (computer, laptop or tablet) with Internet access. In addition, the teacher must have a high level of ICT competence.

However, our study has shown that it is the use of various illustrative and video materials that causes difficulties for the teachers during distance learning. This has been found out in the process of our pedagogical survey at teacher training courses organized at Zhytomyr Ivan Franko State University during September-December 2021. 114 teachers of Ukrainian language and literature, as well as physics, astronomy and computer science took part in the survey. 90% of the teachers had more than 10 years of teaching experience, and 7% of the teachers – from 5 to 10 years.

The teachers were asked to rate their level of computer proficiency on a five-point scale (where 1 is the minimum, 5 is the maximum). As a result, 9% of the respondents rated it 2 points, 43% – 3 points, 28% – 4 points and 20% – 5 points. The average score was 3.5, indicating that even experienced teachers do not reveal a sufficient level of ICT competence.

The results are shown in fig. 1.

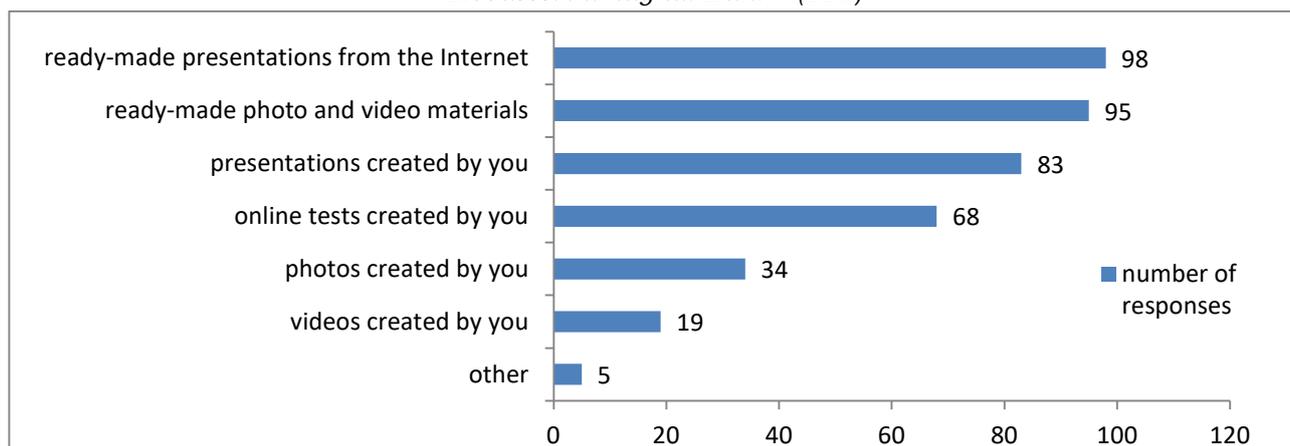


Fig. 1. The results of teachers' answers to the question "What educational materials did you use in the distance learning process?"

The results of the survey allow us to draw the following conclusions:

- most teachers use ready-made presentations and ready-made photo and video materials taken from the Internet (86% and 83% of the respondents, respectively);

- quite a significant number of the teachers (almost 73%) create presentations themselves;

- almost 60% of the teachers independently develop online tests;

- a small number of the respondents use self-created photo materials (about 30% of the teachers) and video materials (about 17%);

- a small number of the teachers (5%) use other materials, in particular, electronic notes (created using the

BookCreator program), worksheets, lesson plans with the determination of the amount of time to complete specific tasks.

It has been also found out that the biggest difficulties for the teachers were creating their own photo or video materials (34%), as well as the technical difficulties when working in Zoom or similar programs (33%), creating and conducting online tests or other control procedures (about 32%). Almost 19% of the surveyed teachers have noted that they met with the problems while creating their own presentations (Fig. 2). Among other problems, insufficient technical equipment and lack of time to prepare educational materials for classes were mentioned.

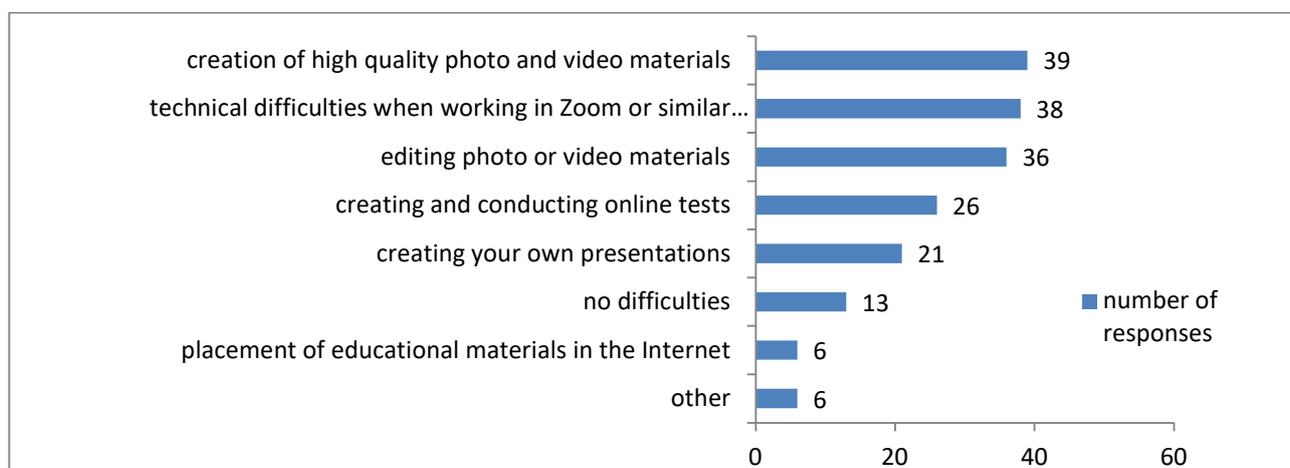


Fig. 2. The results of teachers' answers to the question "What difficulties did you encounter during distance learning?"

The analysis of scientific sources and our practical pedagogical experience have proved that one of the promising directions for solving the problem of increasing the level of ICT competence in teachers and developing their skills and abilities in working with photo and video materials for the purpose of further practical use both in professional activities and to ensure own needs is to conduct thematic classes during their postgraduate training courses or other types of postgraduate education.

In particular, the following topics of classes are offered:

- 1) "Using Internet resources for creating and editing illustrative material";
- 2) "Creating, editing and posting the video lessons".

The main goal of studying topic 1 is to acquaint the postgraduate course participants with the possibilities of using various Internet resources for the preparation of visual materials that the teacher can use in the professional activity.

The lesson consists of two thematic parts. The first part deals with the peculiarities of working with Internet catalogues of photo and video files. Recommendations are provided for organizing an effective search for the necessary illustrative material using keywords and associative links. Particular attention is paid to the issue of integrity when using images that are hosted on web repositories and distributed with different license terms.

The second part of the lesson is devoted to the review of the most popular online services for creating infographics, editing raster and vector images. In particular, the web service www.canva.com containing design templates for various information products, such as presentations, posters, advertisements, information leaflets, etc. is considered. This service stores hundreds of thousands of background images, icons, tables, frames and other decorative elements that can be used to build one's graphic compositions.

Thanks to a simple and clear interface, even a novice user is able to edit the selected template and prepare the necessary information materials. Depending on the type of information product created, it can be saved in various formats – from a simple JPEG image to multi-page PDF documents, animated GIF images and even video presentations.

It should be noted that the Canva platform has a separate web service aimed at teachers and learners. This open resource is free and enables to create and share learning materials in real time. Such functions allow the teachers to maintain active feedback with learners during the lesson. Visual communication during mastering new materials and the possibility of joint work on projects increase the level of interest in the learners and actively involves them in studying.

If necessary, when registering on the website (www.canva.com/uk_ua/osvita/), one can specify and confirm the status of a teacher, learner or educational institution. Such users, depending on the type of registration record, receive additional opportunities aimed at increasing the efficiency of using the service for educational purposes. With this form of registration, not only Canva's services are available (lesson plans, templates for scientific infographics and presentations, educational videos on various topics and posters, a shared virtual learning space of the class), but also the possibility of integration with different Learning Management Systems (LMS) services, such as Moodle, Google Classroom, D2L, Blackboard or Microsoft Teams.

For online editing of raster images on the Internet, it is enough to use one of the most popular services, for example, photopea.com or pixlr.com. The software of the service enables to perform all basic manipulations with raster files (transformation, colour correction, layer-by-layer editing, etc.) and to save the final processing result in the given format. The beginner users can use the service's

template library and tips. More experienced users of the service can choose a working mode with advanced functionality, which is a mode close to working in the Adobe Photoshop program.

Specifically, it is necessary to dwell on the fact that there are specialized online services for solving special problems, for example,

– for constructing graphs of functions, one can use the graphic calculator www.mathway.com/Graph or www.desmos.com/calculator/;

– the services app.chartblocks.com, www.visme.co, charts.livegap.com, etc. will come in handy for constructing charts;

– the services such as www.lucidchart.com or app.diagrams.net, which have a large built-in library of graphic primitives, are more suitable for drawing structural diagrams or block diagrams of various algorithms, the use of which will greatly facilitate the process of creating diagrams.

Topic 2 "Creating, Editing, and Posting Video Lessons" covers two aspects of video creation:

– information technology for preparing and editing video materials;

– an artistic approach to the composition of the frame and the psychology of its perception by the viewer.

As a tool for non-linear video editing operations, one can choose one of the popular free programs – Kdenlive (available at kdenlive.org) or Shotcut (home page is located at shotcut.org). These programs do not require significant computing power for their work, which makes them suitable for use on the computers with cheap processors. Both programs enable basic editing and colour correction of video clips, have a built-in title editor, a library of artistic video effects, and sound correction tools. The edited video project is rendered in all the most popular multimedia file formats.

Special attention should be paid to the issues of harmonious frame construction, organic combination of different video fragments into one meaningful video sequence. For this purpose, it is desirable

to get acquainted with the basic techniques and rules of shooting and editing, the peculiarities of the viewer's perception of static and dynamic images.

It should also be noted that an important moment during classes is the presence of feedback between the lecturer and postgraduate course participants. All interested parties can receive various presentation and informational materials in electronic form, as well as, if necessary, consult with the lecturer.

At the end of the classes, the teachers have been asked to rate on a 10-point scale the usefulness of the received information (where 1 is completely useless, 10 is extremely useful). The overall impression was quite positive, as most of the teachers (96%) has rated the studying information from 7 to 10 points and only 4% –from 4 to 6 points.

Conclusions and research perspectives.

Informatization, computerization, technologization of education can be considered one of the major trends of modern education since the emergence of information technology civilization has led to the process of informatization and computerization of education. The very concept of learning is being changed, since the productive learning is now impossible without the ability to use information. This, in turn, leads to the technologization of education, when technological training is considered as an integral element of general education and is the main component of vocational education.

Thus, the implementation of the proposed approaches in the practice of institutions that carry out postgraduate education of teachers will contribute to the development of ICT competence of teachers, which will positively affect the quality of conducting educational and extracurricular activities in the conditions of distance learning. The perspective of further research is to study the possibilities of increasing the level of ICT competence in the teacher by using online systems for managing the educational process.

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