



TRAINING OF PEDAGOGICAL WORKERS FOR THE USE OF DIGITAL INTERNET TECHNOLOGIES IN THE EDUCATIONAL PROCESS

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Abstract.

Relevance: the availability of modern electronic educational resources in professional (vocational) educational institutions does not guarantee the growth of professional skills of students; therefore, training with the use of digital Internet technologies and electronic educational resources is one of the ways of theoretical and practical training of teachers to digitize the educational process.

Aim: to determine the features of pedagogical workers training to use digital Internet technologies in the educational process.

Methods: analysis and synthesis - to determine the state of development of the research problem; generalization – to formulate conclusions and recommendations for the development of pedagogical workers' competence in the use of digital Internet technologies in the educational process; diagnostic (questionnaire, interview) – to determine the level of competence of pedagogical workers to use digital Internet technologies in the educational process.

Results: it is established that the use of digital Internet technologies and electronic educational resources in the educational process allows: to present material with a high degree of clarity; increase motivation by demonstrating the possibilities of using digital resources in practice; to provide an effective contact environment with all participants in the educational process; to organize a wide space for active independent activity of students; to improve the educational process by modeling educational situations with the use of digital Internet technologies and electronic educational resources in practical classes as both educational material and the results of practical tasks; create preconditions for the development of effective e-learning materials (e-courses).

Conclusions: digital Internet technologies provide unique opportunities to improve educational activities; the space of the Internet contains an inexhaustible array of educational and methodological information and tools for its search, transformation and presentation; teachers need support and time to learn how to effectively use and combine new technologies; the choice of didactic materials of digital Internet technologies and electronic educational resources in the training process involves more than just learning and training on the use of online services and software (you need to understand what are the possibilities of digital technologies and how they can be used to achieve learning goals).

Keywords: professional (vocational) education, pedagogical worker, training, digital Internet technologies, information and educational environment.

Introduction. One of the important directions in the development of modern education is to provide conditions for the use of digital technologies in the educational process. At the same time, even the availability of modern electronic educational resources in professional (vocational) education institutions does not guarantee the growth of professional skills of students, which indicates a slow pace of development and implementation of the necessary educational and methodological support. Conducting trainings with the use of digital Internet technologies and electronic educational resources is one of the ways of theoretical and practical training of pedagogical workers to digitize the educational process.

The cognitive apparatus of the pedagogical workers is formed through terminological nomination, which clearly reflects the process of obtaining, processing, storing and transmitting special knowledge in the form of a terminological sign at the word level within a certain professional activity (Voronina-Pryhodii, 2019). The entry of postgraduate pedagogical education in Ukraine into the European educational space necessitates the development and implementation in the educational process of theoretical provisions for designing information and communication educational space and ensuring the practical implementation of all components of this space, taking into account the best foreign experience in applying ICT to the development of IC competence of teachers (Pryhodii, 2018; Seiko and Yershov, 2021). Digitalization of education influences traditional teaching methods through the introduction of technical innovations, the use of Internet space and interactive technologies, the involvement of specialized software to visualize educational material (Semenikhina, 2014).

The purpose of the article is to determine the features of training of pedagogical workers to use digital Internet technologies in the educational process.

Methods: analysis and synthesis to determine the state of development of the research problem; generalizations for the formulation of conclusions and recommendations for the development of competence of pedagogical workers in the use of digital Internet technologies in the educational process; diagnostic (questionnaire, interview) to determine the level of competence of pedagogical workers in the use of digital Internet technologies in the educational process.

Results and discussion. In their works, the issues of digitalization of education and the introduction of information and communication technologies in the educational process were considered by

V. Yu. Bykov, A. M. Hurzhii, M. I. Zhaldak, L. Z. Manovych, N. V. Morze, O. V. Ovcharuk, O. V. Spivakovskiy, O. M. Spirin; N. V. Bakhmat, I. P. Vorotnykova, L. A. Kartashova, I. V. Plish and others dealt with the problems of formation and development of digital competence of a pedagogical worker.

The emergence of electronic educational resources as a component of information and communication technologies ensures the availability of knowledge, increases the intensity of the educational process, the development of intellectual and creative abilities of students.

The experience gained during the digitalization of education and the results of pedagogical research show that the use of didactic materials of digital Internet technologies and electronic educational resources has a positive effect on the educational process: increases the efficiency of learning; reduces the time to find the necessary information; motivates and strengthens interest in studying the subject; facilitates independent work; is the best option for presenting educational materials to a large audience; clearly explains the new information.

At the same time, pedagogical workers must be able to organize cognitive activities using modern digital Internet technologies and continuously increase their digital competence, which will allow to use electronic educational resources at a high professional level, search, logical selection, systematization of educational material and organization of quality educational process. (Kartashova, Plish, & Bakhmat, 2018).

Implementation of didactic opportunities of digital technologies in the process of training of pedagogical workers involves the implementation of those opportunities, the introduction of which leads to the intensification of the educational process (Hurevych, 2011): quick feedback; visualization of educational information or graphical representation of the studied pattern of the process; modeling and interpretation of information about the studied objects; archiving, storage of a large amount of information with the possibility of easy access to it and its transfer; automation of information retrieval processes; automation of processes of information and methodological support, control over the results of learning new material, as well as operational planning and management of the educational process; automation of information activities and interaction, including the provision of communications based on the use of local and global computer networks.

Universal office programs and applications of digital technologies, as well as electronic versions of

educational and methodical materials are popular in the system of professional (vocational) education: presentations, electronic dictionaries, manuals, reference books, laboratory workshops, simulators, test programs.

Didactic materials of digital technologies are intended for both pedagogical workers and students, and the development of cloud technologies has led to a new awareness of their role in the educational process. One of the decisive factors in the effective use of digital technologies in the process of pedagogical workers training is the formation of competencies in the use of digital technologies and their rational combination with traditional ones.

Teaching and traditional forms of learning have significant differences. Traditional learning is focused on the correct answer and is a form of information transfer and knowledge acquisition, and training is focused on questions and finding answers. Unlike traditional, training forms of learning affect the full potential of the listener, namely: the level of his independence and speed of decision-making, the scope of competencies, the ability to interact with the group, with the coach, with information. The training does not present knowledge as a finished product, but motivates its participants to active activities and intensive learning.

The use of digital Internet technologies and electronic educational resources in the educational process allows (Kryvorot, & Pryhodii, 2020):

- present material with a high degree of apparancy;
- increase motivation by demonstrating the possibilities of using digital resources in practice;
- provide an effective contact environment with all participants in the educational process;
- to organize a wide space for active independent activity of students;
- to improve the educational process by modeling educational situations with the use of digital Internet technologies and electronic educational resources in practical classes as both educational material and the results of practical tasks;
- to create preconditions for the development of effective electronic educational materials (electronic courses).

It has been established that a person can assimilate about 30 % of the information he hears or sees, and when he actively participates in the discussion of issues, the level of assimilation increases to 50 %. During practical actions, especially when a person discusses their actions during practical classes, the level of mastery can increase up to 75 %. The high-

est level, about 90 %, is observed when a person immediately applies the acquired knowledge in real life or teaches this to others.

That is, the best way to absorb information is to discuss it and take appropriate action at the same time. The higher the level of activity and interaction is, the stronger the assimilation of information is, the better formation of stable skills and abilities is.

Thus, reading a lecture gives the lowest efficiency of mastering the material (not more than 15 %). Of course, each educator tries to improve the level of information assimilation through the visualization of educational materials (drawings, posters, tables, graphs), because the images are easier and faster to remember than oral messages. Video combines the possibilities of verbal and visual methods, which can be an effective learning tool. It will also be useful to divide the long lecture into mini-lectures, consolidate the material with current questions and discuss the answers.

The best method for gaining skills is practice-based demonstration. To do this, the practice teacher demonstrates to the participants a certain procedure, explains each stage of the process. Then he answers the participants' questions and invites them to repeat the presented practical actions, explain them and help their group members if the need arises.

For example, if the participants need to be trained to work with a video camera (or any device with a similar function), the practice teacher demonstrates the equipment, explains the sequence of actions, the rules of video recording. Then the students slowly repeat the practical actions, the practice teacher monitors the process and gives feedback in the form of approval or explanation and analysis of errors.

In order for the training process to be enjoyable and have lasting results, to promote development, it must be dynamic and meet the needs of pedagogical workers. It can be made so by organizing three consecutive situations (Training Technology, 2005):

- achievement by the training participant of such a state when there is no threat of failure, there is interest in the proposed activity, relaxation and openness to communication. Under such conditions, the participant can easily focus on the task;
- immersion in a comprehensive experience, because the best person learns when he relies on his experience, knowledge, skills, uses them to learn something new. It helps to separate the familiar from the new, to establish connections between the whole and the details;
- active assessment. Participants analyze their own experience and achievements during the training.

When choosing training methods, it is necessary to take into account: the level of knowledge of pedagogical workers on this topic; what teaching aids can be used to support the material; group size, as interactive forms are more effective for fewer participants; resources, including time and space; technical equipment.

In this regard, it is advisable to identify the following possible, widely available, digital Internet technologies and electronic educational resources that should be used in the training of pedagogical workers: cloud suite G Suite for Education and digital tools from Google; software and web-based services for creating and processing video; programs for creating tests, quizzes, surveys and crossword puzzles; online resources for creating interactive whiteboards, sheets, posters; platforms for creating electronic introductory courses.

Using relevant online services and computer programs to create and edit educational videos requires additional skills. Among the large number of software and web-oriented services should pay attention to the following: Movenote service, Screencastomatic service, Loom, Flashback Express, oCam, SonyVEGAS Pro, OpenShot Video Editor, Kdenlive, Avidemux, LiVES, VideoPad Video Editor.

Otherwise, to use ready-made videos for training activities, you can use available Internet resources: video hosting YouTube (<https://www.youtube.com>) and Vimeo (<https://vimeo.com>); educational platform of mass open online courses Prometheus (<https://prometheus.org.ua/>); EdEra online education studio (<https://www.ed-era.com/>); Ukrainian video lectures, where short videos of 10 minutes each WiseCow are collected (<https://wisecow.com.ua/>).

To achieve the goals of professional development it is necessary to organize such an educational process that will ensure the transition from one type of activity (educational and cognitive) to another (professional and practical) with a corresponding change in needs and motives, goals, actions, means and results (Kryvorot, 2015).

Test surveys have gained considerable popularity in the learning process, as they allow you to quickly and efficiently check the level of mastering the material and automatically build performance statistics based on the results of the work. As a result, the relevance of online platforms and services that facilitate the interaction of the practice teacher with students through tests and exercises has increased significantly. The following recommendations should be taken into account when selecting materials and preparing assignments: the volume, intensity and

level of complexity of tasks in the process of pedagogical workers training should be slightly less than in regular academic classes; lighter load - shorter class duration; the practice teacher needs to receive constant feedback from the students; it is necessary to test the complexity of tasks and, if necessary, replace them; use different types of tasks.

Consider the most convenient free online platforms and services that help create tests and other tasks in various formats: Quizizz, Quizlet, Rebus, Socrative, Online Test Pad, Kahoot!, LearningApps SurveyMonkey, Master-test.

Evaluation of the results of training of pedagogical workers was carried out on the basis of criteria and indicators of competence in the use of digital Internet technologies in the educational process (Pryhodii, 2011): cognitive (knowledge of the educational process using digital Internet technologies); operational activities (ability to organize their own educational activities, practical skills in the use of digital Internet technologies in the educational process); personal and motivational (interest in the use of digital Internet technologies as an important component of professional activity; persistence in self-deepening knowledge; interest in finding and mastering new digital Internet technologies).

Four levels of competence in the use of digital Internet technologies in the educational process are substantiated for evaluation (Pryhodii, 2019):

Entry level – the student has a fragmentary knowledge of the use of digital Internet technologies in the educational process; can show some skills to work with Internet resources; not interested in searching for new Internet technologies; does not show interest in the use of digital Internet technologies in educational activities; does not seek to independently expand knowledge.

Low level – the student has basic concepts and knowledge about the use of digital Internet technologies in the educational process; his skills are selective and non-systematic; is not able to independently choose the optimal Internet technologies in the organization of the educational process; is aware of the importance of digitalization of educational activities, but does not show persistence in their own professional growth; has doubts about his ability to deepen knowledge on their own.

Middle level – the student demonstrates knowledge and understanding of the need for digitalization of education; controls its own activities on the use of digital Internet technologies in the educational process; accumulates information about new Internet technologies, but does not always successfully apply them; demonstrates persistence in self-

deepening knowledge, interested and quite inquisitive in the process of digital training.

High level – the student knows and understands the specifics of digital learning; has knowledge of the stages and features of the use of digital Internet technologies in the educational process; constantly improves skills and practical skills in the use of Internet technologies; finds and persistently analyzes new Internet technologies; pays considerable attention to independent work to deepen knowledge; is

aware of the need to use digital Internet technologies as an important component of professional activity.

Survey of teachers on the use of digital Internet technologies in the educational process (Fig. 1) showed that the level of competence of the participants of the control and experimental groups is statistically the same, most pedagogical workers of the experimental and control groups have an initial level. systematic involvement in the use of digital Internet technologies in the educational process.

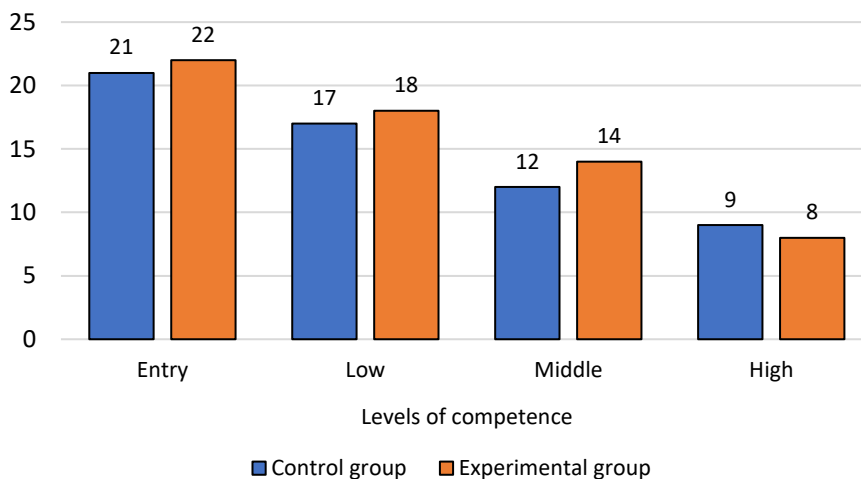


Fig. 1. Levels of competence of pedagogical workers in the use of digital Internet technologies in the educational process (statement stage)

At the formative stage, the pedagogical workers of the experimental group were involved as active participants in trainings on the use of digital Internet technologies in the educational process, and the pedagogical workers of the control group became free listeners and viewers, without practical independent and group tasks. At the end of the training sessions, a control section was conducted, which showed an

improvement in the level of competence of pedagogical workers in the use of digital Internet technologies in the educational process in both the control and experimental groups. But the indicators of the corresponding competence of the participants of the experimental group are higher than the indicators of the participants of the control group (Fig. 2).

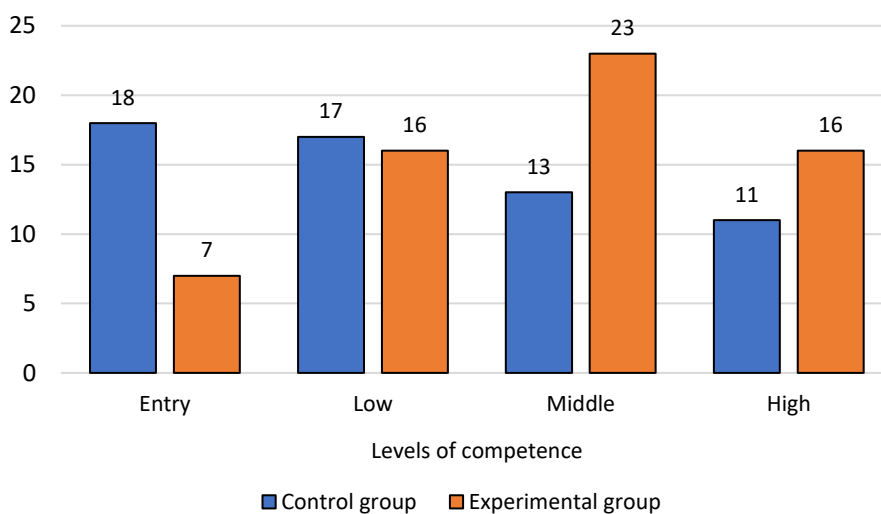


Fig. 2. Levels of competence of pedagogical workers on the use of digital Internet technologies in the educational process (formative stage)

The criterion χ^2 (chi-square) was chosen to test the statistical differences between the control and experimental groups. As a result, differences in the distribution of the level of competence in the use of digital Internet technologies were revealed. Thus, the pedagogical experiment confirmed the effectiveness of training of pedagogical workers to use digital Internet technologies in the educational process.

Conclusions. Digital Internet technologies provide unique opportunities for educational activities. The Internet contains an inexhaustible array of educational and methodological information and tools for its search, transformation and presentation. Of

course, pedagogical workers need support and time to learn how to effectively use and combine new technologies. The choice of didactic materials of digital Internet technologies and electronic educational resources in the training process involves more than just learning and training on the use of online services and software. The training should help, motivate to try and understand the possibilities of digital technologies and how they can be used to achieve the educational goal. At the same time, it is necessary to keep in mind the peculiarities of adult learning and be sure to take them into account when developing and conducting trainings.

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ТРЕНІНГОВА ПІДГОТОВКА ПЕДАГОГІЧНИХ ПРАЦІВНИКІВ ДО ЗАСТОСУВАННЯ ЦИФРОВИХ ІНТЕРНЕТ-ТЕХНОЛОГІЙ У ОСВІТНЬОМУ ПРОЦЕСІ

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Реферат.

Актуальність: наявність у закладах професійної (професійно-технічної) освіти сучасних електронних освітніх ресурсів не гарантує зростання професійної майстерності здобувачів освіти; тому проведення тренінгів із застосуванням цифрових інтернет-технологій та електронних освітніх ресурсів є одним із способів теоретичної та практичної підготовки педагогічних працівників до цифровізації освітнього процесу.

Мета: визначення особливостей тренінгової підготовки педагогічних працівників до застосування цифрових інтернет-технологій у освітньому процесі.

Методи: аналіз та синтез – для визначення стану розробленості досліджуваної проблеми; узагальнення – для формулювання висновків і рекомендацій щодо розвитку компетентності педагогічних працівників до застосування цифрових інтернет-технологій у освітньому процесі; діагностичні (анкетування, бесіда) – для з'ясування рівня компетентності педагогічних працівників до застосування цифрових інтернет-технологій у освітньому процесі.

Результати: встановлено, що застосування цифрових інтернет-технологій та електронних освітніх ресурсів в освітньому процесі дає змогу: представити матеріал з високим ступенем унаочнення; підвищити мотивацію, шляхом демонстрації можливостей застосування цифрових ресурсів у практичній діяльності; забезпечити дієве контактне середовище з усіма учасниками освітнього процесу; організувати широкий простір для активної самостійної діяльності здобувачів освіти; удосконалити освітній процес шляхом моделювання освітніх ситуацій із застосуванням цифрових інтернет-технологій та електронних освітніх ресурсів на практичних заняттях у якості як навчального матеріалу, так і результатів виконання практичних завдань; створити передумови для розроблення ефективних електронних навчальних матеріалів (електронних курсів).

Висновки: цифрові інтернет-технології надають унікальні можливості для вдосконалення освітньої діяльності; простір інтернету містить невичерпний масив навчально-методичної інформації та інструментів для її пошуку, трансформації і представлення; педагогічним працівникам потрібна підтримка й час, щоб навчитися ефективно використовувати та поєднувати нові технології; вибір дидактичних матеріалів цифрових інтернет-технологій та електронних освітніх ресурсів у процесі тренінгів передбачає більш ніж просто навчання і тренування щодо використання онлайн-сервісів та програмного забезпечення (необхідно зрозуміти, які є можливості у цифрових технологій і як саме можна їх використовувати для досягнення навчальної мети).

Ключові слова: професійна (професійно-технічної) освіта, педагогічний працівник, тренінг, цифрові інтернет-технології, інформаційно-освітнє середовище.

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