



**MODERNIZATION OF RESEARCH AREA:
NATIONAL PROSPECTS
AND EUROPEAN PRACTICES**

Scientific monograph

Riga, Latvia
2022

UDK 001(08)
MO045

Title: Modernization of research area: national prospects and European practices

Subtitle: Scientific monograph

**Scientific editor and
project director:**

Anita Jankovska

Authors: Nataliia Pinchuk, Oleksandr Terletsnyi, Yuliia Aleskerova, Lidia Fedoryshyna, Liudmyla Boltovska, Kateryna Burko, Sergii Ivanov, Natalya Osadchaya, Hanna Razumova, Olesia Lemishovska, Dmytro Sopov, Tetiana Karpenko, Andrii Sryberko, Serhiy Burlaka, Tetiana Yemchik, Serhiy Burlaka, Natalia Telekalo, Julia Poberezhets, Mykhailo Zamrii, Olena Solona, Ihor Kupchuk, Ihor Tverdokhlib, Yurii Polievoda, Vitalii Yaropud, Inna Honcharuk, Pavlo Leontiev, Inna Torianyuk, Svitlana Kalinichenko, Oksana Starishko, Olha Voronkova, Olha Voronkova, Yuliia Voronkova, Taisiya Shevchenko, Svitlana Koshova, Artem Androsenko, Ljudmila Dovbnia, Petro Dovbnia, Kateryna Kovalova, Tetiana Ponomarenko, Tetiana Shynkar, Svitlana Kaleniuk, Iryna Loshchenova, Marta Karp, Lyudmila Maystrenko, Anzhelika Solodka, Tatiiana Moroz, Oksana Sinenko

Publisher: Publishing House “Baltija Publishing”, Riga, Latvia

Available from: <http://www.baltijapublishing.lv/omp/index.php/bp/catalog/book/234>

Year of issue: 2022

All rights reserved. No part of this book may be reprinted or reproduced or utilized in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publisher and author.

Modernization of research area: national prospects and European practices: Scientific monograph. Riga, Latvia: Baltija Publishing, 2022. 712 p.

ISBN: 978-9934-26-221-0

DOI: <https://doi.org/10.30525/978-9934-26-221-0>

The scientific monograph presents the theoretical and practical aspects of the modernization of research area: national prospects and European practices. General questions of economics and enterprise management, technical sciences, technology of food and light industry, physical and mathematical sciences, geographical sciences, medical sciences, legal sciences, national security issues, pedagogical and philological sciences, and so on are considered. The publication is intended for scientists, educators, graduate and undergraduate students, as well as a general audience.

© Izdevniecība “Baltija Publishing”, 2022
© Authors of the articles, 2022

Table of Contents

CHAPTER «PHYSICAL AND MATHEMATICAL SCIENCES»

Nataliia Pinchuk, Oleksandr Terletskyi

NANOSTRUCTURED COATINGS ZRN, OBTAINED
BY VACUUM-ARC DEPOSITION METHOD. 1

CHAPTER «ECONOMIC SCIENCES»

Yuliia Aleskerova, Lidiia Fedoryshyna

HEALTH INSURANCE, PROSPECTS OF DEVELOPMENT IN UKRAINE. 19

Liudmyla Boltovska

CURRENT TRENDS IN THE DEVELOPMENT
OF THE MEAT PRODUCT SUBCOMPLEX OF UKRAINE
IN THE CONTEXT OF EUROPEAN INTEGRATION. 52

Kateryna Burko

METHODS OF TRAINING OF ACCOUNTING SPECIALISTS
IN THE CONDITIONS OF DISTANCE EDUCATION. 87

Sergii Ivanov, Natalya Osadchaya, Hanna Razumova

STRATEGIC DIRECTIONS
OF UKRAINE'S EXPORT STRATEGY FORMATION. 108

Olesia Lemishovska

CAPITAL IN ACCOUNTING WORKS OF SCIENTISTS
OF GALICIA IN THE SECOND HALF OF THE XIX –
MIDDLE OF THE XX CENTURY: RETROSPECTIVE ANALYSIS
AND EVALUATION FROM THE POSITION OF MODERN LANDMARKS. 139

CHAPTER «GEOGRAPHICAL SCIENCES»

Dmytro Sopov, Tetiana Karpenko

GEOSPATIAL FEATURES OF LAND USE AND NATURAL PREREQUISITES
FOR LAND DEVELOPMENT IN LUHANSK REGION (UKRAINE). 161

Andrii Sryberko

CALCULATION OF THE VERTICAL DISTRIBUTION
OF THE SPEED OF SOUND IN THE BLACK SEA BASED
ON SATELLITE DATA IN THE PERIOD SPRING – AUTUMN 2021. 184

CHAPTER «AGRICULTURAL SCIENCES»

Serhiy Burlaka, Tetiana Yemchik

IMPROVING THE EFFICIENCY OF THE USE OF BIODIESEL
FUEL MIXTURES IN THE SYSTEMS OF AUTONOMOUS ENERGY
SUPPLY OF AGRICULTURAL ENTERPRISES 205

Serhiy Burlaka, Natalia Telekalo

MODERNIZATION OF THE POWER SUPPLY SYSTEM
OF A DIESEL POWER PLANT 238

Julia Poberezhets, Mykhailo Zamrii

EFFICIENCY OF USING A PROBIOTIC FEED ADDITIVE
IN FEEDING KURCHAT BROILERS 270

Olena Solona, Ihor Kupchuk

DEVELOPMENT OF A FUNCTIONAL MODEL OF A VIBRATING MILL
WITH ADAPTIVE CONTROL SYSTEM OF MODE PARAMETERS 302

Ihor Tverdokhlib, Yurii Polievoda

THE INFLUENCE OF PARAMETERS OF RUNNING SYSTEMS
AND THEIR SUSPENSION ON THE SAFETY OF OPERATORS
OF MOBILE MACHINES AND ENERGY EQUIPMENT 329

Vitalii Yaropud, Inna Honcharuk

DEVELOPMENT AND JUSTIFICATION OF CONSTRUCTIVE-REGIME
PARAMETERS OF THE AUTOMATED SYSTEM OF MICROCLIMATE
PROVISION IN APC PREMISES 360

CHAPTER «MEDICAL SCIENCES»

Pavlo Leontiev, Inna Torianyk, Svitlana Kalinichenko

PARAMETERS OF BLOOD AND ERYTHROCYTES AS MARKERS
OF AGE OF OCCURRENCE OF HEMATOMAS IN LIVING PERSONS 390

Oksana Starishko, Olha Voronkova

LACTOBACYLLI IN THE MICROBIOTA OF THE REPRODUCTIVE
TRACT OF WOMEN WHO SMOKE AND DO NOT SMOKE 409

CHAPTER «PHYSICAL EDUCATION AND SPORT»

Olha Voronkova, Yuliia Voronkova

CHONDROMALATION: DIAGNOSIS, TREATMENT, REHABILITATION . . . 433

METHODS OF TRAINING OF ACCOUNTING SPECIALISTS IN THE CONDITIONS OF DISTANCE EDUCATION

Kateryna Burko¹

DOI: <https://doi.org/10.30525/978-9934-26-221-0-4>

Abstract. The use of innovative technologies is one of the important foundations for the development of the educational institution in modern conditions. Such technologies contribute not only to improving the quality of the educational process, but also to the creation of an information system for managing an educational institution. Prolonged quarantine forced to pay due attention to distance education. Expanding the information potential before the higher school sets the task of training specialists capable of ensuring the comprehensive development of the enterprise. Therefore, the study and use of innovative teaching technologies in the higher education system of Ukraine is extremely important. *The aim of the work* is to study the essence, types and use of innovative technologies of training in the training of accounting specialists in higher educational institutions of Ukraine in conditions of distance learning. The paper reveals the definition of innovations in the pedagogical process. The innovative teaching methods common in higher education of Ukraine are considered. There are signs of active learning. Generalization of modern achievements of world practice in the field of higher education was carried out. The role and requirements for a modern accountant and the advantages of innovative teaching methods in the training of accounting specialists are disclosed. *Methodology.* The research methodology is based on fundamental and general scientific principles. Methodological provisions and principles have found their tactical embodiment in such research methods as: analysis, synthesis, induction, deduction, analogy. *Results* of the study showed that the main task of the information space of the educational institution, in the conditions of distance learning, is to

¹ Senior Lecturer of the Department of Accounting,
Vinnytsia National Agrarian University, Ukraine
ORCID: <https://orcid.org/0000-0002-4321-1292>
ResearcherID: L-5956-2018

create safe comfortable conditions for the exchange of information between participants in the educational process. The introduction of technologies for combining online and offline learning in one chain contributes to the development and improvement of the capabilities of all participants in the educational process: students and teachers. A mixed teaching model enables students to improve learning efficiency by improving self-employment skills and the ability to highlight the main thing in the learning process. At the same time, this model contributes to improving the professionalism of teachers. *Practical implications.* The introduction of active learning methods should encourage students to study accounting disciplines. When preparing higher education applicants for the educational program “Accounting and Taxation” at Vinnytsia National Agrarian University, modern innovative methods are actively implemented in the organization of the educational process. *Value/originality.* Distance learning is only a forced step in the general stage of education applicants. It is impossible to ignore it, so it is necessary to establish a clear organization of effective and effective training. Analysis of the main possibilities of organizing and implementing distance learning in the educational process of training higher education applicants of the specialty “Accounting and Taxation” makes it possible to assert that in wartime conditions in Ukraine, the remote form of organization of the educational process has become the most optimal and safe. In this situation, mixed and distance learning models developed during the coronavirus pandemic in synchronous and asynchronous modes are becoming useful.

1. Introduction

High-quality and thorough education at all times was the basis of progress. However, over time, the ways of obtaining education change.

The beginning of the XXI century is associated with the active development of information technology and the processes of innovative development. Education, as one of the most important components of society, depends on the processes taking place in it and at the same time affects all aspects of life, so it must quickly respond and correspond to the state of scientific and technological progress.

The expansion of information potential before the higher school sets the task of training specialists capable of ensuring the comprehensive

development of the enterprise through the use of progressive innovations, the introduction of the most modern technologies and teaching methods.

Dynamic social changes lead to the emergence of new requirements for accounting information, reporting indicators and ways to transfer them to the user, which, in turn, leads to the need to adjust approaches to determining the professional qualities and responsibilities of accounting employees.

In today's conditions, well-organized accounting and established indicators of reporting accounting forms enable business entities to critically evaluate their activities, analyze the main business processes and adjust plans for their further activities. That is why, in order to generate timely and useful accounting information, the issue of keeping records professionally and qualified by specialists-accountants providing quality services is very important.

Under the professionalism of an accountant is usually understood: education, work experience in the specialty, knowledge and skills, analytical qualities, the ability to perceive changes and new knowledge.

The development of the accounting profession is impossible without the creation and activities of public professional organizations, which are entrusted with the mission of forming responsibility for the development of the economy and society in the minds of accountants. The association of professional accountants determines the qualifications of its members, contributes to the improvement of their social and financial situation, helps to increase the prestige of the accounting profession.

In order for an accountant to remain qualified and desirable in the labor market, it is necessary to constantly develop, improve themselves and be aware of all current trends and innovations.

Digitalization of the economy deepens the mission, subject, object and functions of accounting and the profession of an accountant.

Trends in the development of accounting in the context of digitalization of management, cause a new level of its theory and methodology and further prospects for the development of the profession and mission of the accountant.

The education system is becoming a source of digital change. The development of education has led to the emergence of such new technologies of learning as electronic (e-learning), mobile (m-learning), u-learning (u-learning), "inverted" (f-learning). They integrate with the

traditional education system and form blended learning technology, which has gradually become popular in educational institutions.

Modern information and communication technologies open access to non-traditional sources of information in various forms. They allow you to implement fundamentally new forms and methods of training.

The use of innovative pedagogical technologies activates the process of acquiring knowledge, forming skills and developing competencies.

Currently, the demand of employers is growing for representatives of the new generation of accounting workers, because the transition to electronic documentation and the ability to organize remote work in the clouds, for accounting becomes a vital necessity and helps to preserve the efficiency of enterprises.

The growth of information and requirements for the knowledge of specialists, affect the growth of the role of the teacher and increase the requirements for his activities, which are aimed at the intellectual development of the nation and the formation of professional competence of a specialist. Therefore, in the current conditions of deepening competition in the labor market, the study and use of innovative teaching technologies in the higher education system of Ukraine is extremely important.

In recent years, in the scientific literature, a lot of attention has been paid to the importance of innovations in higher education. Scientists investigated such issues as: innovative development of higher education in Ukraine; innovations in higher education as a factor in the formation of the national knowledge economy; innovative and oriented training of students; formation of communicative competence of teachers; formation of professional pedagogical skills; psychological aspect of computerization of education; formation of psychological and pedagogical competence; formation of students' ability to professional self-growth in the conditions of innovative learning; factors of effectiveness of independent work of students; problems of informatization of learning technologies and others.

Scientific developments were also carried out on the research of training specialists in accounting, auditing and taxation in Ukraine. However, the problems of ensuring high-quality teaching of accounting disciplines in the context of the use of modern innovative technologies, active forms and teaching methods that contribute to improving the efficiency of training future accounting specialists remain insufficiently studied and require

further research. Particularly important is the study of teaching methods in Ukraine with the transition to full distance learning in conditions of force majeure during quarantine and hostilities.

2. Factors of development of educational innovations

The quality of life and educational potential of Ukrainian society is largely determined by the level of education and culture of the population, its worldview orientation and spiritual development, the ability to systematically receive and use the necessary information. These factors affect the degree of inclusion of Ukrainian society in national and world universal processes of progressive development. Education, which meets the modern needs of society and the labor market, acts as a powerful adaptive potential in a fleeting transformative society to modern socio-economic realities, which becomes the most important condition for successful and sustainable social development [1].

In today's conditions, a person is considered as a subject who actively and consciously uses information technology to acquire knowledge and skills. According to Dubasenyuk O.A., the education system is created for a person, functions and develops in his interests, serves the full development of the creative personality [2, p. 28]. According to the research of Dychkivska I. M., education in its content, forms and methods is variable, since it must respond to new civilizational challenges, social realities, taking into account trends, prospects for the development of mankind, the national existence of the people. However, the renewal of educational practice often lags behind the pace of civilizational development, social requirements for it. For a long time, especially in the early stages of human development, the identified problem was not as urgent as in the industrial and post-industrial (information) era. This problem was noticeably actualized in the second half of the twentieth century, which was caused by a significant breakthrough in scientific and technical development, a radical change in traditional ideas about the world, life, its values, the future of civilization [3, p. 8].

Ukraine's entry into the world economy requires the training of a new generation of economic professionals who are able to think critically, solve complex problems, manage people, be flexible, make decisions quickly, know languages, be able to negotiate, have economic methods of effective

influence on the development of the economy. This requires from teachers the ability to choose in each case the best option for building an educational process, based on modern innovative technologies, which would be the shortest way to the most effective and high-quality solution of the tasks.

The term “innovation” (from the late Latin *innovatio* – renewal, novelty, change) means innovations, that is, targeted changes that introduce new stable elements (innovations) into the environment that cause the transition of the system from one state to another [4].

With regard to the pedagogical process, innovation means the introduction of a new goal, content, methods and forms of education and upbringing, the organization of joint activities of the teacher and students [5].

Melnikova O. V. believes that innovations in higher education can be interpreted as newly created or improved competitive technologies, products and services, as well as organizational and technical solutions of a production, administrative, commercial or other nature that significantly increase the quality, efficiency and effectiveness of the educational process. At the same time, the main elements of educational innovation are its carrier, which has a certain innovative idea and conducts an innovative experiment; consumer of innovation – a student or a group of listeners (who acquire knowledge in a particular direction); as well as institutions that ensure the introduction of innovations in the educational process (higher education institutions); education management bodies; scientific and methodological institutions; scientific and production enterprises) [6, p. 18]. Barabas D., Dzhafarov D. and Shpak I. argue that innovations in education are the introduction of new (in this period of time and for this territory) methods, forms and approaches to the transfer of knowledge, the formation of skills and abilities in students [7, p. 38].

The modern system of innovations in higher education consists of:

- technological innovations, which include new technologies of training, educational programs; terms of study, criteria for recruiting students, educational and methodological materials, etc.;

- pedagogical innovations, including new methods of teaching and learning, new forms and organization of training sessions: the use of interactive forms and multimedia means of training, the use of telecommunication methods of constructing knowledge, simulation

technologies, “case method” technologies, video training techniques, computer modeling, virtual reality technologies;

– organizational innovations that provide for the emergence of new organizational structures and institutional forms in the field of education: types and types of educational institutions and institutions, reorganization of the structure of the higher education system, etc.;

– economic innovations consisting of new economic mechanisms in the field of education: diversification of sources of funding for educational institutions in accordance with the tasks of innovative development, introduction of new forms of payment for educational services; development of modern mechanisms of tax and credit obligations, new mechanisms of remuneration in the field of education, etc. [6].

Pedagogical innovation in its essence is a complex formation that covers the following theoretical blocks of concepts and principles:

– the creation of a new one in the system of education and pedagogical science (new in pedagogy, classification of pedagogical innovations, conditions for creating a new one, novelty criteria, a measure of readiness of the new to its development and use, traditions and innovations, stages of creating a new one in pedagogy);

– perception of the new socio-pedagogical society (specificity of perception, development and evaluation, awareness by the pedagogical community of what arises in pedagogical theory and practice);

– a system of recommendations for theorists and practitioners on the knowledge of innovative educational processes and their management (understanding the practice of applying pedagogical innovations, studying the laws and forms of implementation, using the new on the basis of variability) [4, p. 43].

In the development of educational innovations, there are five stages [2]:

The first stage is the initiation of innovations and the decision on the need to introduce innovations of a certain type.

The second stage is theoretical, that is, the substantiation and elaboration of innovations because of psychological and pedagogical analysis, forecasting how the innovation process will develop and what its negative and positive consequences are (economic, legal, etc.).

The third stage – organizational and practical – is the creation of new structures that contribute to the development of innovations: laboratories, experimental groups, etc. T

he fourth stage – analytical – is a generalization and analysis of the resulting model.

The fifth stage is the implementation, which can be trial, and then complete.

Burkova L. presents the system of implementation of new in pedagogical innovation in the following sequence:

- 1) the study of the tasks provided for by regulatory documents;
- 2) analysis of practice and comparison of data obtained in its process with social requirements;
- 3) modeling of reference results, which are expected as a result of the transformation of pedagogical practice;
- 4) search for ideas, recommendations that can be implemented;
- 5) development of a comprehensive program that covers the laws of implementation of the new;
- 6) selection of didactic, material, informational, organizational means, etc.;
- 7) theoretical, methodological, psychological training of participants in the implementation of new;
- 8) establishing communication with the authors of the recommendations [8].

According to Vakulenko V. M., innovative processes in the modern education system testify to a qualitatively new stage of interaction and development of scientific, pedagogical and pedagogical creativity and processes of application of its results. It is characterized by a tendency to eliminate the gap between the processes of creating pedagogical innovations and the processes of their perception, adequate evaluation, development and application, as well as to overcome the contradiction between the spitivity of these processes and the possibility and necessity of conscious management of them [4].

Competition in the market of educational services contributed to the emergence of new educational institutions, such as: virtual universities, licensed (franchise) universities, corporate universities, educational brokers, educational and scientific and production complexes (technoparks), research universities. The purpose of innovations in the educational system is to improve the learning process, facilitate the perception of information, increase the competitiveness of university graduates in the labor market, increase the competitiveness of universities themselves compared to other universities, etc. [7, p. 39].

The introduction of technologies for combining online and offline learning in one chain (mixed learning) contributes to the development and improvement of opportunities for all participants in the educational process: students and teachers. The mixed model of teaching allows students to increase the efficiency of learning by improving the skills of independent work and improving practical skills to acquire knowledge with the help of information computer technologies, correctly prioritize and highlight the main thing in the educational process. At the same time, this model contributes to improving the professionalism of teachers, improving their informatization. Mixed learning technology makes it possible to enrich methods and techniques of training; expand the content of training; promote the implementation of innovations in the methodology, content of training and in the ways of organizing the educational process and the control system and methods of evaluation.

3. The field of distance learning

One of the types of innovations in the organization of education is the introduction of distance learning. Unlike distance learning, distance learning allows you to study while at any distance from the educational institution. Distance learning is also called “lifelong education” because the majority of those who study are adults. Many of them already have higher education, but due to the need to improve their skills or expand the scope of activity, many needs to quickly and efficiently learn new knowledge and acquire work skills.

In conditions of economic relations and fierce competition in the labor market, knowledge, skills and experience are of particular importance. A specialist of the XXI century is a person who is fluent in modern information technologies, constantly increases and improves his professional level. The acquisition of new knowledge and skills in the era of the Information Society significantly expands the possibilities of self-realization and contributes to career growth.

In the world, a variety of such training as distance learning has become widespread for a long time, but in Ukraine it has existed for the last ten years.

Distance learning is a form of training using computer and telecommunication technologies that provide interactive interaction between teachers and students at different stages of training and independent work with information network materials.

Distance learning is developing at a tremendous pace. This is facilitated by the development of the Internet, and the growth of its information and communication capabilities. However, remote technologies introduced into the educational process require more careful development of the methodology for mastering knowledge, analyzing the priorities of factors affecting the efficiency of teachers and applicants in the remote environment.

The main principles of the distance education system are: flexibility, modularity, dynamism, adaptability, continuity, creativity and openness. It is based mainly on self-production of the required amount and quality of knowledge and involves a combination of a wide range of traditional and new information technologies. The use of these technologies allows applicants, students to replenish the list of skills and abilities that will further determine a person's success in any field of activity. These include: the ability to independently plan their activities; the ability to make decisions, make choices and be responsible for it; ability to work in the information space; ability to present the results of activities using information technology; self-education skills. The success of distance learning depends on its effective organization, on the management of the process itself and the skills of the teachers participating in it.

Distance learning is divided into synchronous and asynchronous. Synchronous mode involves interaction between subjects of distance learning, during which participants are simultaneously in an electronic educational environment or communicate using audio and video conference tools. This form of work allows you to support those who study. The communication between the teacher and the student should be bilateral to ensure interactivity and dialogue. This leads to the understanding that a person is involved in the joint process.

Asynchronous mode means interaction between subjects of distance learning, in which participants interact with each other with a delay in time, while using interactive educational platforms, e-mail, forums, social networks, etc. Asynchronous distance learning is as necessary as synchronous, because some students need more time to independently study a particular topic, so differentiation is ensured.

Among the main tasks of using distance learning technologies in higher education institutions are: creating the most favorable conditions for applicants for education in obtaining higher education; advanced training of

teaching staff and retraining of personnel on the basis of the introduction of the latest information, communication and psychological and pedagogical technologies of training.

To implement the process of distance learning, teachers and applicants need a tool. The platform is one of those tools. This is a software system that allows you to place, communicate, control the knowledge of applicants for education, manage the course and learning process. According to Osadchiy V. “distance learning environment” is a set of methods and software tools with which remote distance learning technology is performed. The scientist believes that such an environment is formed in two ways: using distance learning platforms (Moodle, Ding Talk, Zoom, Microsoft Teams, Classdojo and Google Classroom, etc.) and using a set of Internet services (blog, e-mail, online board, online video and audio, chat rooms, forums, online testing tools, online presentations, electronic libraries, etc.) [9, p. 8].

In educational institutions of Ukraine, along with traditional learning technologies, distance learning technologies are also widely used. This approach in training involves both full-time and distance learning on various platforms.

With the beginning of the quarantine due to the COVID-19 pandemic, the popularity of the Zoom service, which is used in general secondary and higher education institutions for distance learning, as well as for webinars with a large number of users and speakers, has increased. However, Zoom does not allow testing, evaluation, electronic journaling and material exchange.

Moodle is a learning management system that provides communication between teachers and students, implemented in the form of Internet conferences, discussions, forums. It provides applicants with many opportunities. Among them: access to educational materials (lecture texts, tasks for practical and independent work of students; auxiliary materials (textbooks, teaching aids, dictionaries, reference books, etc.) and means for testing and communication; tools used for group work of applicants for education (forums, chat rooms, webinars, seminars, etc.); viewing the results of the course by the applicant of education; viewing the results of the test in the required discipline; communication with the teacher in chat rooms, forums, personal messages; downloading files with completed tasks; use of the event calendar, etc.

Moodle system has secure access, but it is difficult to adapt on smartphones, there is no possibility to hold online meetings, has a complex interface that requires certain skills.

Practical work with students shows that the most effective is hybrid learning – a combination of synchronous and asynchronous distance learning. It is important to ensure access to educational and methodological materials, regardless of the place of residence of the participants in the process.

Coronavirus has radically changed people's daily lives. Due to quarantine, most educational institutions were transferred to distance learning. The transition to distance learning caused by the pandemic was an unexpected and quite serious test for all participants in the educational process. Everyone had to accept this challenge and quickly adapt to new realities. During this time, Ukrainian teachers radically changed modern education, found new methods and techniques, applied interesting ideas, learned how to motivate both themselves and applicants for education to work in such unusual conditions.

Although distance learning is not a substitute for full-time and was not planned for the long term, it has become an effective tool not only during quarantine, but also during the hostilities in Ukraine. Under martial law, the remote form of organization of the educational process turned out to be the most optimal and safe. In this situation, mixed and distance learning models developed during long-term quarantines in synchronous and asynchronous modes became useful.

4. Training of accounting specialists

Accounting and auditing play a leading role in the processes of creating reliable and reliable information support for economic decision-making purposes, and professional accounting organizations occupy a significant place among the world's players regulating economic and financial flows [10, p. 335].

The profession of an accountant is universal and promising. Currently, the specialty "Accounting and Taxation" is an economic specialty that enables employment: chief accountants, heads of departments, financial directors, accountants, accountants-auditors, accountants-experts, heads of the accounting group, controllers-auditors, economists in accounting and

analysis of economic activity, economists for financial work, economists, analysts, auditors, chief state tax inspectors, senior state tax inspectors, inspectors-inspectors of the tax service, auditors, consultants on economic issues, researchers, teachers.

Enterprises of various forms of ownership, today, need highly qualified accounting specialists who are familiar with the regulatory legal acts regulating the activities of enterprises in Ukraine and are able to keep records both manually and automated and are ready to improve their professional skills.

The change in approaches to the role and place of the accountant in the modern information society led to the expansion of its functions in accordance with the requirements of the modern economy. Accountants cease to be fixers of the events performed, but become active participants in the management of the enterprise. Employers provide advantages to those accountants who know the current legislation, have knowledge of international accounting and reporting standards, customs legislation, speak foreign languages, are able to conduct the necessary analytical research and perform control functions.

According to Shigun M. M., in order to take advantage of the advantages provided by modern innovative technologies in the field of accounting and auditing, radical changes in the acquisition of the skills and competencies of accountants are needed, which determine the possibility of applying new approaches to the recognition and evaluation of assets, processing large amounts of data in the preparation of arrays of financial and non-financial information, identifying markers of risks of the company's activities for the purposes of managing them [10, p. 335].

Ensuring the implementation of high-quality professional practical activities of accountants is not possible without proper training of such specialists in educational institutions. During their studies, students master the skills of conscious, justified formation of the accounting policy of the enterprise and its effective optimization; research of regularities of development and management of tax processes, budgetary relations of the state in accordance with legislative and regulatory acts of Ukraine; understanding of the essence of tax risks; ability to exercise internal control and keep tax records; study and analyze standard and atypical tax schemes. Important aspects of educational activity are the formation of a high

professional level of specialists with a deep knowledge of humanitarian, fundamental, general economic, professional disciplines, as well as the possibility of professional adaptation in the conditions of market economic relations.

In the process of improving and increasing the competitiveness of students and universities, there is a change in the requirement for teachers (including accounting) and the introduction of various methods of intensifying training.

Active teaching methods are teaching methods, in the use of which educational activity is creative, cognitive interests and creative thinking are formed [11, p. 10].

Kulikova O. identifies the following signs of active learning [12, p. 2]:

- high degree of involvement of students in the educational process;
- activation of students' thinking and creative application of knowledge in solving practical problems;
- self-development of solutions, increased degree of interest;
- increasing the level of motivation and involving students in solving the problems under discussion;
- interactive nature of training: constant interaction of subjects of educational activity, free exchange of views on solving a particular problem.

As part of long-developed and effective methods of active learning, there are: lecture-conversation; mini-lecture; problematic lecture; lecture-visualization; Lecture with scheduled errors; brainstorming method; project method; case method; analysis of a specific situation; small groups; discussion; method of cases; trainings; dramatization; Didactic games and others. The latest educational systems that are introduced in the best universities in Ukraine are: online education (create training courses that students have the opportunity to view online) and mixed learning (in parallel with ordinary training, the student can use online lectures, pass testing, pass academic debt).

According to scientists, the consequence of a low number of real educational innovations in Ukraine is non-compliance with the requirements of modern society and a low level of competitiveness of Ukrainian universities compared to foreign ones [7, p. 44].

In world practice, there are a number of innovative learning systems that have not yet been widely used in our country, namely [7, p. 45]:

Chapter «Economic sciences»

– Flipped classroom. The “inverting” of this approach to learning is manifested in the fact that students independently, according to an arbitrary schedule, get acquainted with theoretical material online, and the audience has the opportunity to discuss the studied material in groups, solve certain problem problems, cases, and conduct discussions.

– Electronic textbooks (E-textbooks). This is not just a copy of the manual, suitable for viewing on a computer, but interactive textbooks that are created by teachers and in which its author can freely add video lectures, videos from the Internet, presentations, audio files, etc. Such a textbook is an innovative alternative that significantly reduces the cost of communicating information to the student, as well as significantly increases its relevance, visibility and level of assimilation by students, because it does not require printing, is constantly updated and contains the latest information.

– Massive open online courses. This is an online training course with the possibility of free participation and open registration, publicly covered curriculum and open results. Such courses are developed by the best teachers from all over the world, which destroys the geographical boundaries of obtaining high-quality education.

– Create specialized computer games and practical simulations that allow students to go through virtual practice, or learn certain material in game mode.

– The Big Date concept. On the basis of “Big Date”, integrated databases are created that increase the scientific potential of a higher educational institution. The “Big Date” approach clearly controls copyright through strict automated plagiarism verification.

– Mobile applications. The applications contain all the necessary data, files and information with which the student needs to work daily: assessments, schedule of classes, additional events, communication with teachers, university news, electronic textbooks. Students can use the information anywhere, anytime through their smartphones, tablets or laptops.

The introduction of active learning methods should encourage students to study accounting disciplines, and this largely depends on the level of training of the teacher himself and his ability to present information and create conditions for students to learn the skills and abilities provided by the program and curriculum.

Chizhevskoa L.V. notes that the modern education system imposes the following requirements on the accountant-teacher: possession of special knowledge and skills; knowledge of teaching methods; possession of modern information technologies; self-education and self-education; general communicative competence, including in the field of foreign languages; ability to maintain a pedagogical image; Pedagogical demands [13].

Mokhnenko A. S. expresses confidence that information technology is becoming a catalyst for achieving such goals in the field of education as:

- mutual learning;
- development of critical thinking;
- formation of a stable motivation to increase the educational level throughout life;
- the ability to obtain new knowledge, using previous achievements as ready-made results [14, p. 175–176].

Quality control of knowledge is an integral part of the process of education and professional training of specialists in various fields. According to Zakharchenko S. M. it is an interrelated activity of the teacher and subject of study – student, entrant, student, etc. Control and evaluation of knowledge perform simultaneously the function of checking the assimilation and practical application of the subject of learning the knowledge gained during the educational process, as well as the function of stimulating, moral encouragement through participation in a kind of intellectual competition [15].

Computer testing, as one of the methods of knowledge control, facilitates the work of the teacher to systematize and assess the quality of students' knowledge and allows the student to independently assess the level of their knowledge. This method of control makes it possible: to organize feedback between the student and the teacher using the Internet; obtaining an objective assessment with the exception of the human factor; formation of generalized statistical assessments of control results, etc.

When preparing higher education applicants for the educational program “Accounting and Taxation” at Vinnytsia National Agrarian University (VNAU), modern innovative methods are actively implemented in the organization of the educational process. The electronic quality management system of educational activities “Socrates”, which is a complex computer network, is the university's own development. The work of the system is

aimed at: ensuring the management of the educational process; conducting personal affairs of students and teachers; electronic support of the library; automation of work of deans, teachers, departments; creation of e-books; accounting and control of students' knowledge; monitoring the current performance of students. In order to prevent and detect academic plagiarism in 2015, the formation of an electronic database of diploma and coursework began. Works that have been tested using anti-Plagiarism software are placed in the university's repository.

The system of designing own educational means "Personal cabinet of the teacher" of VNAU gives an opportunity: publication of own methodological materials by the teacher for their use in educational cards of disciplines; self-publication of own scientific materials by the teacher in the electronic repository of VNAU; maintenance of electronic journals of the teacher, scoring and examination information; formation of tests with the help of WEB-designer of electronic tests "Test-Master"; to conduct the teacher's own educational documentation; view the schedule of classes and curricula from the educational part on-line; send messages to students or teachers, etc.

The system "WEB-Thesaurus" VNAU allows you to perform testing and self-study of students via the Internet. The advantages of this system are: the general availability of the test base for the Internet community (exceptions are exam tests with passwords); independence from the type of operating system (you can even work from a mobile phone); high speed of work; automatic work with the electronic knowledge control system (Internet VNAU).

The information educational environment of VNAU allows to realize in the educational process a large part of the capabilities of modern technologies for the training of accounting specialists. The development and application of electronic, distance and mobile learning technologies contributes to increasing the level of their professional training and competitiveness in the labor market.

The staff of the Faculty of Accounting and Audit of Vinnytsia National Agrarian University does an extremely important thing every day – it trains highly qualified specialists capable of competing in the world market. Scientific achievements and developments are being actively implemented, the latest programs in priority areas of scientific research are being

implemented to solve important socio-economic problems in various sectors of the Ukrainian economy.

The Faculty of Accounting and Audit carries out educational activities on the basis of its own scientific and pedagogical experience and international innovative educational technologies. The educational process is based on a combination of traditional and new educational teaching methods through the use of interactively problematic lectures and seminars; case technologies and business games, the use of modern multimedia and audiovisual technologies.

In today's conditions, teachers can provide software material using distance learning technology in the following forms: to publish tasks for independent work on the university's website (you can in a viber group) on the relevant topic of accounting disciplines; organize daily educational communication with applicants; provide individual assistance via Skype, Viber, WhatsApp; post multimedia presentation materials on the Internet (Google Drive); provide a list of Internet sources that will contribute to the better assimilation of educational material.

VNAU teachers successfully implement the functions of the online service Zoom: conducting online classes and conferences; recording personal appeals or joint conversations; demonstration of materials from the desktop, smartphone or tablet; planning the event in advance and inviting participants.

This year's implementation of the Moodle platform expands the possibilities of organizing a full-fledged educational process at the university and a system for monitoring and evaluating the educational activities of applicants. In the Moodle system, applicants can not only get acquainted with the main materials of a separate course, but also monitor their success. The multifunctionality and flexibility of the system allows the teacher to independently create a distance learning course and personally adjust access to them, use time constraints and create their own systems for assessing students' knowledge.

The crisis of the educational sphere due to COVID-19 has become, on the one hand, a challenge, and on the other hand, it is an exceptional opportunity to work out online training to provide quality educational services using virtual systems.

5. Conclusions

The active introduction of modern computer technologies in all spheres of public life, economy and production, as well as the new opportunities they have provided, have a significant impact on education as an important social phenomenon.

In the context of the rapid development of information technologies and automated accounting systems, the traditional system of training does not contribute to its individualization in a higher educational institution and thereby insufficiently prepares future accounting specialists for professional activities. For an effective indicator of the formation of professional competence of the future accounting specialist in the process of training, it is necessary to constantly improve the professional and teaching skills of the scientific and pedagogical staff and use forms of active training focused on the professional training of future accounting specialists.

One of the real ways to improve the quality of professional training of future accounting specialists, the intensification of educational, cognitive and research activities of students, the disclosure of their creative potential is the development and implementation in the educational process of computer-oriented methodical systems for teaching professional disciplines, which are based on web technologies.

At the moment, when educational standards provide for a significant increase in the time for independent work of students in the educational process, such innovative technologies as electronic, distance and mobile learning open up wide opportunities for solving the problems of organizing independent work of students and allow them to access educational materials anywhere and at any time, which makes the learning process more attractive and comfortable and stimulates self-education.

The global COVID-19 coronavirus pandemic has become a catalyst for global digital transformation processes in all spheres of life. The role of digital technology in education is becoming extremely important. For Ukraine, in which hostilities are taking place, another important of their prerogative has become quite noticeable – the ability to protect human lives and at the same time ensure the implementation of the educational process.

For a correct transition to a distance form, students and the Viktors of the Vinnytsia National Agrarian University will be able to implement the “Socrates” system. It’s not new for Ukraine, it’s up to the end of 2020. In the

minds of force majeure, a quarantine hour is imposed and the military will be redirected to the online situation in an open unplanned mode and by requiring the protection of the first technical services not to waste our time. To this, importantly, the strategy, methodology and personnel preparation of the remote navchannya is to blame for the development and development of the state's revolution.

References:

1. Siryi Ye. (2010) Innovatsiyni rozvytok osvity v Ukraini: rozghortannia problemy ta zasadnytski oriientyry [Innovatsiyni rozvytok osvity v Ukraini: rozghortannia problemy ta zasadnytski oriientyry]. *Aktualni problemy sotsiologii, psykholohii, pedahohiky zbirnyk naukovykh prats*. Kyiv, pp. 65–77. (in Ukrainian)
2. Dubaseniuk O. A. (2014) Innovatsiyyi v suchasniy osviti [Innovations in modern education]. *Innovatsii v osviti: intehratsiia nauky i praktyky: zbirnyk nauko-vo-metodychnykh*. Zhytomyr: Vyd-vo ZhDU im. I. Franka, pp. 12–28. (in Ukrainian)
3. Dychkivska I. M. (2012) Innovatsiyni pedahohichni tekhnologii [Innovative Pedagogical Technologies], 2 nd. ed. Kyiv: Akademvydav, p. 352. (in Ukrainian)
4. Vakulenko V. M. (2010). Vydy innovatsiy v osviti ta yikh klasyfikatsiya [Vydy innovatsiy v osviti ta yikh klasyfikatsiya]. *Visnyk Natsional'noyi akademiyi Derzhavnoyi prykordonnoyi sluzhby Ukrainy*, vol. 4. Retrieved from: http://nbuv.gov.ua/jpdf/Vnadps_2010_4_4.pdf
5. Dubaseniuk O. A. (2004) Innovatsiyni navchal'ni tekhnolohiyi – osnova modernizatsiyyi universytet-s'koyi osvity [Innovative educational technologies – the basis of modernization of university education]. *Osvitni innovatsiyni tekhnolohii u protsesi vykladannia navchalnykh dystsyplin*. Zhytomyr: Vydavnytstvo ZHDU, pp. 3–4. (in Ukrainian)
6. Melnikova O. V. (2014) Innovatsiyyi u vyshchii osviti yak chynnyk formuvannya natsional'noyi ekonomiky znan' [Innovation in higher education as a factor in the formation of the national economy of knowledge]. *Zbirnyk naukovykh prats Kharkivskoho natsionalnoho pedahohichnoho universytetu imeni H. S. Skovorody*, vol. 14, pp. 16–27. (in Ukrainian)
7. Barabas D., Dzharafarov D., Shpak I. (2016) Osvitni innovatsiyyi ta yikh implementatsiyya v Ukraini [Educational innovations and their implementation in Ukraine]. *Naukovyi visnyk Odeskoho natsionalnoho ekonomichnoho universytetu*, vol. 3, pp. 35–54. Retrieved from: http://nbuv.gov.ua/UJRN/Nv_2016_3_5
8. Osadchiiy V. V. (2010) Systema dystantsiynoho navchannya univ'syretetu. [University distance learning system]. *Naukovyy visnyk Melitopol's'koho derzhavnoho pedahohichnoho universytetu*, no. 5, pp. 7–16. (in Ukrainian)
9. Burkova L. (2000) Kliuch do upravlinnia: Klasyfikatsiia pedahohichnykh innovatsii yak element mekhanizmu keruvannia innovatsiynym protsesom v osviti [Kliuch do upravlinnia: Klasyfikatsiia pedahohichnykh innovatsii yak element mekhanizmu keruvannia innovatsiynym protsesom v osviti]. *Dyrektor shkoly, litsei, himnazii*. Kyiv, no. 1, pp. 31–37. (in Ukrainian)

10. Shigun M. M. (2017) Profesiyna bukhhalters'ka osvita i kvalifikatsiya: yevropeys'ki oryentyry [Professional accounting education and qualifications: European guidelines]. *A collection of materials of the international scientific Internet conference [Ternopil, June 30. 2017], Oblik, opodatkovannia i kontrol: teoriia ta metodolohiia [Accounting, taxation and control: theory and methodology]*. Ternopil: TNEU, pp. 335–337. (in Ukrainian)

11. Artyomov I. V., Shershun A. B., Piasecka-Ustych S. V. (2015) Innovatsiia u vyshchii osviti: hlosariy terminiv i ponyat' [Innovatsii u vyshchii osviti: hlosarii terminiv i ponyat' [Innovations in higher education: a glossary of terms and concepts]. Uzhhorod: PP «AUTDOR – ShARK», p. 160. (in Ukrainian)

12. Kulykova O. (2014) Aktyvni metody navchannya v pidhotovtsi fakhivtsiv knyhoznavchoho profilyu [Active methods of training in the training of specialists in book science]. *Visnyk Knyzhkovoï palaty*, no. 2, pp. 3–6. (in Ukrainian)

13. Chyzhevska L. V. (2007) Bukhhalters'kyi oblik yak profesiyna diyal'nist': teoriya, orhanizatsiya, prohnoz rozvytku [Accounting as a professional activity: theory, organization, development forecast]: monohrafiya. Zhytomyr: ZhDTU, pp. 351–356. (in Ukrainian)

14. Mokhnenko A. S. (2017) Vykorystannya innovatsiinykh tekhnolohiy u pidhotovtsi maybutnikh fakhivtsiv z bukhhalters'koho obliku [The use of innovative technologies in the training of future accounting professionals]. *Materialy mizhnarodnoi naukovo-praktychnoi konferentsiyi "Rozvytok sotsial'no-ekonomichnykh system v heoekonomichnomu prostori: teoriya, metodolohiya, orhanizatsiya obliku ta opodatkovannya"*, 11-12 travnya 2017 roku. Ternopil: FOP Palyanytsya V.A. Ternopil: FOP Palyanytsya V. A., pp. 174–177. (in Ukrainian)

15. Zakharchenko S. M., Kovalchuk A. Yu. (2017) Tekhnolohiyi komp'yuternoho testuvannya znan' [Computer-based knowledge testing technologies]. *Materials of XLVI Scientific and Technical Conference of VNTU Departments, Vinnytsya, March 22-24*. Retrieved from: <https://conferences.vntu.edu.ua/index.php/all-fitki/all-fitki-2017/paper/view/2581>