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Formation of an effective management system in the educational space of higher education institutions

Формування ефективної системи управління в освітньому просторі закладів вищої освіти

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Abstract

The article shows the importance of reforming the education system at the current stage of society's development to create an effective management system in the educational space. The role of an innovative university in creating an effective management system in the educational space is revealed; the principle provisions of the new management paradigm are highlighted; the formation of an effective management system in the educational space of higher education institutions is proposed. The main mechanisms and functions of control for carrying out reforms to form an effective management system in the educational space of a higher education institution are revealed; the main types of management activities are described. The main functions for controlling the management system are highlighted; the


Анотація


У статті показано важливість реформування системи освіти на сучасному етапі розвитку суспільства з метою створення ефективної системи управління в освітньому просторі. Розкрито роль інноваційного університету у створенні ефективної системи управління в освітньому просторі; виокремлено принципові положення нової управлінської парадигми; запропоновано формування ефективної системи управління в освітньому просторі закладів вищої освіти. Розкрито основні механізми та функції контролю для проведення реформ з метою формування ефективної системи управління в освітньому просторі закладу вищої освіти; описано основні види управлінської діяльності. Виокремлено основні функції для контролю системи управління; принципи розвитку системи управління в

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principles of the development of the management system in the educational space of higher education institutions and the task of an innovative research university by the peculiarities of the organization of the management system in the educational space is proposed. An experimental study was conducted during which we investigated the importance of an innovative management system in the educational space, the professional development of heads of higher education institutions, and the level of quality of higher education in higher education institutions.

Keywords: innovative management system, higher education, innovative university, control mechanisms and functions, higher education institutions.

Introduction

The innovative activity of the educational sector has led the world community to a new, higher level of development. The objective historical process today is the constant innovative renewal of society, which is determined by the systemic regularity of the development and growth of any socio-economic system. Innovative processes begin in certain fields of science, causing progressive changes in society, which culminate in the sphere of production. One of the strategic priorities of any country is the innovative orientation of the higher education system, which is implemented through the activation of research activities, increasing the level of computerization of educational institutions, and the formation of innovative structures in higher education institutions. An effective system of educational space emphasizes the role of education and this is confirmed by the fact that the most important indicator of the country's development, the guarantee of its stability and prosperity is the average level of literacy of the adult population. The definition of the human development index is based on the state's educational potential and determines the country's place in world rankings. The renewal of knowledge on the planet used to take place every 20-30 years, and today's development of society has accelerated the renewal of knowledge by 20% per year, that is, we observe a complete rethinking of knowledge every five years, and in some fields of science, this process occurs even faster.

The last decade highlights the following main world trends in the system of higher education: globalization of the sphere of higher education and its internationalization; rejection of mass unified higher education; fierce international

освітньому просторі закладів вищої освіти та запропоновано завдання інноваційного дослідницького університету відповідно до особливостей організації діяльності системи управління в освітньому просторі. Проведено експериментальне дослідження під час якого ми досліджували вагомість інноваційної системи управління в освітньому просторі, професійного розвитку керівників закладів вищої освіти, рівня якості вищої освіти у закладах вищої освіти.

Ключові слова: інноваційна система управління, вища освіта, інноваційний університет, механізми та функції контролю, заклади вищої освіти.

competition in the field of education; growth of trade in educational services at the international level; reduction of the "life cycle" of skills, abilities, and knowledge; rapidly growing flow of information (Boltianska & Boltiansky, 2020), which occurs due to the formation of an effective management system in the educational space.

The relevance of the research problem of the formation of an effective management system in the educational space is due to: the need to establish effective relations between local, regional, and state education management bodies; the need to reform the education system at all its levels; the ever-growing role of education as a field that has a powerful potential for the formation and development of the future of the state; implementing the ideas of a democratic society; increasing the efficiency of state administration.

Literature review

Scientists and practitioners from all countries of the world pay attention to the analysis of the current state of development of the education system and modernization of the sphere of education. A. Kuzminskyi, I. Oros, T. Kuchai, K. Shovsh, I. Siladiy, & O. Bida (2022) considered the first theories of scientific management and highlighted the qualities that a manager should possess for his activities to be effective. In the historical perspective, modern concepts that differentiate the leadership style, which is presented as situational and flexible, are highlighted. The process of forming a team of teachers is shown, as the creation of a coherent, unified team of teachers that can effectively

achieve the goals of a specific project. The socio-pedagogical conditions and specifics of the reasons for creating a conflict-free educational environment in educational institutions and the possibility of solving the problem of formation of conflict-related competence in future education managers are shown. The organization of control and diagnostic activities, according to which management decisions are made to regulate the object, is revealed.

The state of personnel provision of the education system was characterized by V. Bobrytska (2015). The issue of the educational sector is considered based on modern monitoring studies on the investigated issue; the approaches that will ensure the European dimension in the formation of the state personnel policy of any country in the training of employees for the education system are highlighted.

O. Shamanska's (2022) research is interesting, where the use of innovative technologies in education is analyzed in modern conditions of social development. The theoretical essence of the concept of "education", its features, meaning, and main components are defined; the importance of using innovative technologies in education is outlined. It is practically proven that it is innovative forms of educational space that will develop and reveal the intellectual potential of an individual, and stimulate him to acquire new knowledge. The need to use the "Case method" in education as one of the effective tools in education – the use of effective innovative technologies has been proven.

Comparative studies are of great importance for clarifying the effectiveness of the management system in the educational space. In particular, S. Moroz (2019) analyzed China's experience not only to identify ways to ensure the development of the educational sector but also to justify the possibility of their use in the management system of the development of the quality of higher education; the main stages were considered and the priority development vectors of China's education system were determined, the institutionalization of the norms of the educational sector was emphasized; the role and place of education in ensuring socio-economic and socio-political transformations is defined; summarized the results of reforms carried out by the Chinese government; conclusions were made regarding the areas of improvement of practice and the content of the use of quality management mechanisms of higher education.

The same problem is investigated by N.

Boltianska and O. Boltiansky (2020). Scientists described the characteristics of an innovative university and showed its role in integration into the European scientific and educational space and developed a model of the organization of a scientific research innovative university.

Authors R. Bretaña, D. Chávez, N. Fernández, N. Hincapié & M. Bonilla (2022) observed that the implementation of a management system contributes to the achievement of the institutional objectives and the satisfaction of the interested parties, likewise, it must incorporate the requirements established in the accreditation models in higher education.

Scientists J. Morales-Piñero, D. Niño-Muñoz & D. Lesmes-Cardenas (2022) describe problems with Public or private management of universities: Which is the most efficient option for a public policy in higher education in Colombia?

In the article, scientists A. Valencia Celis, G. Rosas Patiño & V. Sánchez Castillo (2023) highlight problems in identifying students' state of knowledge and learning in the first cycle of Higher Secondary Education of an educational institution regarding Natural Sciences.

So, the analysis of literary sources allows seeing the current state of development of the education system, and modernization of the education sphere. An analysis of the problem of formation of the managerial culture of the head of an educational institution was made from socio-pedagogical positions and the model of the system of formation of the managerial culture of the head of an educational institution was substantiated; the state of personnel provision of the education system was considered, the possibilities of applying innovative technologies in education were analyzed. Comparative studies are valuable and are of great importance for clarifying the effectiveness of the management system in the educational space. Scientists and practitioners have shown insufficient effectiveness of the management system in the educational space.

Therefore, the **purpose of our research** is to consider an effective management system in the educational space of higher education institutions.

Methodology

The methodological and theoretical basis of our research is the dialectical and generally scientific

methods of scientific knowledge: comparative and logical analysis (to identify the features of an effective management system in the educational space); system analysis of management in education (to form a holistic view of the management system in the educational space and self-governance in the education system; statistical method and analysis method (to assess the state of education development); sociological methods (to identify the state of the management system in the educational space from the point of view of social groups and subjects of the educational process) and others.

The theoretical basis of the research is literary and scientific sources, works of foreign and domestic scientists, scientific research in the field of educational policy, self-governance, management of educational systems at various levels, best domestic and European practices in the functioning of educational systems, development of an effective management system in the educational space, management of institutions and educational institutions.

Empirical research included – conducting research and experimental work; analysis of the results of an effective management system in the educational space; surveys, questionnaires of respondents; expert assessment; monitoring the activities of management and higher education students; statistical – for qualitative and quantitative analysis of the results of the experimental study, the processing of the obtained experimental data was carried out.

A survey was conducted, which was aimed at identifying the level of relevance of various content areas in the innovative management system in the educational space. The results of the questionnaire survey analysis showed that 78% of the respondents positively evaluated the format and content of the proposed program of the innovative management system in the educational space.

The main wishes and comments of the participants in the study of the effectiveness of the innovative management system in the educational space related to increasing interactivity in the process of expanding opportunities for sharing experiences and learning.

Among the questions of the questionnaire offered to the respondents were those whose content direction is related to determining the level of quality of higher education in higher education institutions. 452 students of higher education

took part in the survey. We are not talking about the fact that the conducted survey is representative because it cannot be considered a selective population that reproduces the characteristics of the general population. We believe that according to certain characteristics, the deviations of the sample population from the general population are not significant, which means that we claim that the obtained results for working out generalizations regarding the level of development and the formation of an idea about the subject of scientific attention can be considered at the level of the informational basis.

The implementation of the pedagogical experiment was carried out in three stages: preparatory, main, and final.

At the preparatory stage, the purpose and tasks of the research were determined, the experimental plan was developed, methods of measurement and processing of results were selected, control and experimental groups were selected, and their homogeneity was checked.

At the main stage, an experiment was conducted.

At the final stage, the results of the experiment were analyzed, their reliability was confirmed, and conclusions were drawn about the pedagogical effect of the experiment.

The reliability and validity of the obtained results, and the objectivity of their assessment were ensured by the methodological soundness of the initial positions and the qualitative mechanism for evaluating the quality under study, the use of a complex of complementary research methods, and the involvement of a group of respondents from a higher educational institution in the analysis of its results.

To assess the homogeneity of experimental and control data, statistical processing was performed using MS Excel and SPSS (Statistical Package for Social Science).

Research relies heavily on the accuracy and reliability of the data. In the framework of research work, the quality of data collection and analysis not only adds weight to the research but also contributes to the formation of sound conclusions, which is the key to academic success.

The following digital data collection tools were useful in the study:

– Google Forms – a simple tool for creating

surveys that allows you to collect data from respondents, create different types of questions, and collect answers in spreadsheets.

- SurveyMonkey – a modern survey tool that offers a wide range of customization options and analytical tools for analyzing the collected data.
- JSTOR, Google Scholar, and other academic search engines provide access to scholarly articles, books, and other academic resources that may be useful for literature review and theoretical data collection.
- Zotero or Mendeley – bibliography management programs that help organize research materials, store references, and format bibliographies and citations according to different citation styles.
- Microsoft Excel or Google Sheets – spreadsheets are useful for organizing and analyzing collected data when working with quantitative data.
- SPSS, R, or Python for more advanced data analysis, statistical analysis, and processing of volumes of data.

When determining the sample of subjects, the general specificity of the research subject was taken into account. The total volume of the sample is 100 subjects. When forming the sample, the criteria of meaningfulness, representativeness, and equivalence were taken into account. The sample was formed by random selection using the technical procedure for calculating the selection step.

The results of the experimental study confirmed the applicability, optimality, and effectiveness of the proposed pedagogical conditions for the formation of an environmental culture of an ecologist in the process of professional training.

Results and discussion

Reforming the education system to create an effective management system in the educational space. The key task and the main problem of reforming the education system is changing the principles of management in general and an effective management system in the educational space, in particular, the introduction of the mechanisms of the educational model and self-governance of students of higher education. As European practice shows, during the "shift of management emphasis from state to public in the transition to a systemic, corporate character, a powerful stimulus for development, consistent harmonization of state-public management, enrichment of public potential in management,

development of new approaches to management, which act as a source reforming the education system" (Oseredchuk et al., 2022).

The global trends of modernization and reform of the entire education system present the world education system with tasks of a completely new level. This is the creation and use of an effective model for the formation of an effective management system in the educational space, namely a competitive education system, which takes place without breaking away from the processes of formation and constant improvement of the single European space of higher education. The vector of development of such a system of higher education with an effective system of management in the educational space is set by the Sorbonne Declaration and the Bologna Process, which were put into effect in May 1998 by the ministers of Great Britain, Germany, and France. The Sorbonne Declaration forms the main criteria for improving the quality of education. These criteria are aimed at promoting the mobility of teachers, students, and researchers, recognizing qualifications by approaching the qualifications framework of the European Higher Education Area, gradually harmonizing training cycles, improving the international transparency of educational courses, developing programs for postgraduate and higher education, and the general system of degrees.

The role of an innovative university in creating an effective management system in the educational space. The innovative approach to the formation of an effective management system in the educational space is facilitated by an innovative university, an institution that ensures sustainable development, with a developed infrastructure, and deep integration of educational, scientific, and innovative activities that ensure sustainable development, ensures the demand and quality of scientific research and higher professional education. The innovative university maintains an academic component, works in three interrelated directions – scientific research, education, and innovation and is characterized by an innovative infrastructure formed by centers of innovative consulting, technology transfer, small innovative companies, business incubators, science parks, etc. An innovative university is an entrepreneurial institution. The main activities for him are educational and scientific activities based on management principles and innovative approaches. In the innovative university, the main goal of innovation is the formation of an effective management system in the educational

space, increasing competitiveness in the corresponding market segment.

Innovative management (innovative principles of management) of such a university complex presupposes the implementation of an innovative educational cycle: from the acquisition of knowledge to its implementation on the specialized market.

In the innovative university, measures aimed at reducing the impact of negative changes are implemented, constant analysis of changes in the internal and external environment is carried out, and positive trends in the development of education are used. The innovative research university provides conditions for scientific results and the process of performing experimental, applied, research and development work to be used for the organization of targeted and basic training of specialists, retraining of personnel, as well as for the development of new innovative technologies (Boltianska & Boltiansky, 2020).

Principles of the new management paradigm.

Key points of the modern system of views on an innovative research university, and its management, that is, the "new management paradigm", are the following principles:

1. Abandoning the managerial rationalism of classical educational and management institutions, when the success of the entire enterprise system is determined primarily by the rational organization of production, the influence on internal management factors, the development of specialization, and cost reduction. Instead, the main place is occupied by the problem of adaptation and flexibility of the organization to constant changes in the external environment (a set of variables outside its boundaries).
2. Application of the means of the situational approach in the management process, according to which the central moment of the organization within the enterprise is the situation, a specific set of circumstances that affect the work of the enterprise in this period.
3. The use in the practice of management of the achievements of the theory of systems is inextricably linked with the outside world, which facilitates the unity of the task of considering the organization of its components. The success of the enterprise depends on the limits of transparency, and openness in the external environment.

4. Today, the orientation towards new factors of social development and conditions is reflected in the principles of modern management, which indicate the growing role of the entire organization of the system between people, human professionalism, and personal qualities.
5. Recognition of the social responsibility of management to the circle of people working in the organization and to society.
6. The implementation of new innovative principles of management requires a radical revision of production and culture, management personnel, growth and strengthening of their personal and professional potential, the entire philosophy of modern business, changes in the psychology of working people, significant improvement of their qualifications (Kuzminskyi et al., 2022).

Formation of an effective management system in the educational space of higher education institutions.

The effectiveness of the modernization of the education system, the formation of an effective management system in the educational space, and professional training will largely depend on the extent to which the higher school turns its face to the future and frees itself from the patterns of old ideas (Tverezovska et al., 2022).

To form an effective management system in the educational space, higher education institutions should, with the participation of the European University Association (EUA), European Students' Union (ESU), and European Association of Institutions in Higher Education (EURASHE), be guided by recommendations for the development of standards, procedures and quality assurance directives developed by the European Network for Quality Assurance in Higher Education (ENQA) – an independent body, the most authoritative European organization, which includes European accreditation and quality assurance agencies, which, by the requirements of the Bologna Declaration, coordinates work on the creation of a system of quality assurance in higher education.

The policy of ensuring professional training, the quality of higher education, and certification of specialists with an effective management system in the educational space is aimed at achieving the optimal level of organizing pedagogical activities in the innovative university, taking into account the social, personal, state, economic interests and

needs of the shareholders of education. To determine the sufficient competence of specialists, innovative educational institutions should develop methods that are involved in the educational process. Such methods for external verification should be available and recorded in reports (Oseredchuk et al., 2022).

When forming an effective management system in the educational space, it is necessary to proceed from the fact that motivated and highly qualified employees are the most important factor of the organization, the main capital. That is, one of the most important resources of the organization is the personnel, which is considered necessary to achieve all goals. With such an approach, changes must occur in the consciousness, personnel policy, and university administration, in every employee and student of higher education of the university, in their value orientations, views, and business relationships. These changes should be implemented and supported by the entire innovative university team.

The formation of an effective management system in the educational space is aimed in the field of the quality of the provision of educational services to achieve results by the goals, to satisfy the expectations, various needs, and requirements of society and the state, individuals, as well as institutions of higher education, which are interested independent parties.

The approach to the development and implementation of an effective management system in the educational space includes several components:

- definition of expectations and needs of consumers (interested parties);
- definition of responsibility and procedures necessary in the field of quality to achieve goals;
- development of the goals of the organization and its policy on quality assurance;
- determination of resources that are important, necessary and their provision in the field of quality of achievement of goals;
- development of methods for evaluating the effectiveness of each process and effectiveness;
- application of the results of these measurements to determine the effectiveness and efficiency of each process;
- identification of means that are important and necessary not only to prevent non-conformities but also to eliminate their causes;

- development of ways of continuous improvement of the management system in the educational space, and application of quality management measures (Parente et al., 2021).

The main mechanisms and functions of control for carrying out reforms to form an effective management system in the educational space of a higher education institution.

To carry out reforms in the education system to form an effective management system in the educational space of a higher education institution, the following basic mechanisms should be applied:

- raising the social status of scientists and teachers;
- debureaucratization of the education management system, increasing the role of public management in the education system;
- introduction of independent assessment of teachers' qualifications, and results of their educational activities;
- provision of academic freedoms for scientific and pedagogical workers;
- expansion of autonomous rights for educational institutions;
- introduction of economic stimulation for quality educational activities (reform of the system of state financing of education);
- development of the National system of qualifications;
- bringing the education structure and education classification into line with international (Chyzhevskiy, 2014).

It is quite obvious that for the formation of an effective management system in the educational space of a higher education institution, it is necessary to ensure the quality control of educational services, to combine the efforts of the community and the state in creating strategies for reforming the educational sector as equal partners, to strengthen social protection for all participants in the educational process, and to improve innovativeness in training competitive personnel, which can provide a comprehensive and comprehensive solution to management problems in the field of education.

Without public support, legislative support for educational activities will remain ineffective. Therefore, education management should be state-public. The problem of forming an effective management system in the educational space of a higher education institution, involving the public

in the development and adoption of management decisions, implementation and creation of its mechanisms, about changing the content, methodological approaches, technologies of education of higher education seekers to successful professional activity by modern needs is the most important in the current transformations of the entire society (Suprun, 2020).

Types of management activities.

The basis of an effective management system is the control and diagnostic activity of the head of the educational institution, who occupies a leading position in the institution. We observe two types of management activity here:

- a perceptive type of management activity provides an opportunity to collect information about the development of the educational process and its course, through direct perception of the pedagogical activity, provides for a comparison of the state of affairs, which is effective with the standard;
- communicative, provides an opportunity to create a communication network through which the information necessary for communication of the manager, management of the pedagogical process, and interaction with deputy teachers, and students of higher education flows. Therefore, it is necessary to pay great attention to the organization of control and diagnostic activities, because it is during such activities that innovative management decisions are made to control and regulate the object.

When organizing the control of an effective management system in the educational space of higher education institutions, it is worth starting from the following provisions:

- goal-directedness and specificity of control, objectivity, taking into account all the basic regularities of the study of the educational process;
- systematicity and systematicity of control based on the determination of the optimal terms for the organization of inspections, the selection of the most expedient types for a given period, and consideration of time;
- a dialectical approach to the analysis and study of the content of the specialists' work.

During the control process, it is necessary to define specific tasks for each member of the teaching staff, to systematically cover all areas of

the educational process, and to outline the ways of their implementation; day-to-day verification of the execution of decisions, orders, and orders.

Functions for controlling the management system in the educational space of higher education institutions.

The following functions are extremely important for management control:

- diagnostic (shows the real state of the quality of education in the educational institution);
- informational (creates an array of information in the institution of higher education for quality education);
- corrective (minimizes the influence of negative factors in the educational process);
- evaluative (based on a certain set of indicators and criteria, it provides a quantitative and qualitative assessment of the objects of the educational process in a higher education institution);
- prognostic (forms the tactics and strategy of the development of higher education in the educational institution);
- communication (to perform the diagnostic function, provide information, enable feedback);
- management (monitors the results of the developed programs and the effectiveness of the decisions made);
- preventive (reveals prevention of negative consequences and undesirable deviations).

Control functions are closely related to each other and are implemented with the help of their subjects; creating feedback and direct communication between subordinates and the manager (Kuzminskyi et al., 2022).

Principles of development of the management system in the educational space of higher education institutions.

"Among the global Sustainable Development Goals, which determine the prospects for the development of humanity until 2030, the provision of inclusive and equitable quality education and the promotion of lifelong learning opportunities for all are defined". By the content of this strategy, a purposeful, flexible, effective system of education management is necessary, which ensures the quality of education and its intensive development, its focus on individual requests, meeting the needs of the country, provides for the decentralization of education management, optimization of state management structures; redistribution of functions and powers

between educational establishments and institutions and local self-government bodies; regional and central education management bodies; development of the system of autonomy of institutions and educational institutions, measures to implement decentralization of management, expansion of their opportunities and rights regarding financial independence; transition to programmatic management, etc. (Shetelya et al., 2023).

Let's name the main principles of the development of the management system in the educational space of higher education institutions. These are openness, democracy, joint participation in the implementation of educational, production, and educational processes, interaction, coordination, mutual control, and joint management.

As a socio-cultural center, a higher education institution is a place of interest of both the community and the state, it is both an element of the structure and a part of social life that is subject to state control. In the conditions of the development of the expansion of the practice of co-management and democracy, higher education institutions rely on communities and public organizations, which helps to complete the transition from state dominance, and the policy of patronage over the public to their interaction and constructive partnership. "The direct management of an educational institution is carried out by the founders or a body authorized by them, the head of the educational institution, the collegial management body of the educational institution. The basis of education management is the state educational policy, which is fixed in the current legislation and appropriately guides management activities. At the same time, in the conditions of modernization transformations, the development of the educational sector may imply certain changes in the principles and mechanisms of state management of education" (Suprun, 2020).

Tasks of an innovative research university by the peculiarities of the organization of the management system in the educational space.

By the peculiarities of the organization of the management system in the educational space of higher education institutions, an innovative research university must ensure:

- administrative and structural component; financial and economic regulatory and legal, material and technical, scientific and methodological support; based on

innovative principles of management and organization – the unity of scientific and educational activities;

- active formation and forecasting in the field of science-intensive technologies, educational services, and labor markets, in the region with the aim of anticipatory staffing and scientific and technical support of priority industries;
- implementation of research and design developments, fundamental and applied research in priority areas of education and science, and critical technologies at the federal level;
- provision of a wide range of services of different levels, variable educational programs, content, and forms, including training through the participation of higher education seekers in development and research;
- the relationship between applied developments and the balance of the stages of exploratory and fundamental research, the demand for the results of innovative technologies and their implementation in production, and personnel support;
- in the field of education and science, protection of rights to intellectual property objects for all participants in educational, scientific, innovative activities, and their commercially profitable use;
- adequate consideration of the needs of infrastructure and structure development, external conditions and innovative activities, active participation of the higher education institution in the field of education and science, in the development of small entrepreneurship;
- deep integration of innovative, educational, scientific, and technical activities with scientific organizations and specialized industrial enterprises;
- availability of resource management systems, quality management, management of the results of educational and research activities, implementation, and evaluation of their innovative potential (Illiashenko, 2015).

This approach makes it possible to formulate the main tasks of the development of an innovative university:

- ensuring the unity of scientific, educational, and innovative processes and their focus on the training of highly qualified specialists of the new generation;
- promotion to the market of new technologies developed based on the commercialization

of scientific knowledge and inventions in the institution of higher education in conditions of effective protection of rights and objects of intellectual property using new financial and economic mechanisms;

- creation of conditions for the use of innovative activities of higher education institutions, involvement of teachers, scientists, students of higher education, and graduate students in the innovation process, to improve the quality of specialist training and strengthen the role of higher education institutions as a center for the development of innovative activities;
- creation of a system of quality management of innovative, educational, and scientific activities in a higher education institution based on a single information space of a higher education institution, which unites innovative, educational, and scientific blocks of a higher education institution with the organization of automated document flow (Boltianska & Boltiansky, 2020).

In an innovative research university, due to the peculiarities of the organization of the management system in the educational space, every management decision must be aimed at achieving the institution's main goal.

In a higher education institution, management of innovation processes is one of the functions of a modern manager. To a large extent, the success of this activity depends on the personality of the manager, who takes into account trends in the development of education, can see prospects, objectively assesses the personnel and material and technical capabilities of the institution, is aware of possible risks, is oriented to cooperation with the heads of other state and educational institutions, parents, organizations, public figures, and most importantly, he directs his efforts to the professional development of his colleagues and strives for continuous self-development (Nemchenko et al., 2022).

Experimental research.

During the experimental study, we relied on the research of scientists who studied the professional development of heads of higher education institutions in the innovative management system in the educational space (Viteri Intriago et al., 2020).

More than 100 representatives of higher education institutions (provosts and heads of departments) became participants in the study.

A survey was conducted, which was aimed at identifying the level of relevance of various content areas in the innovative management system in the educational space.

The survey showed the following distribution: measurement of learning outcomes and competence approach – 23%; innovative learning technologies in the innovative management system in the educational space – 22%; the labor market provided by higher education and – 21%; ensuring the quality of the innovative management system in the educational space – 20%; joint and double diplomas – 18%; mobility of teachers and students in the educational space – 17%; implementation of the Bologna process in the educational space – 14%; staff development in the innovative management system in the educational space – 13%; governance and autonomy in higher education – 12%; internationalization in the innovative management system in the educational space – 10%; in the innovative management system in the educational space of positive image formation – 9%; in the innovative management system in the educational space of forming a student-centered environment – 9%; integration of research, education, innovation in higher education – 7%; organizational development of educational space – 6%; social dimension of educational space 3%.

The following served as additional guidelines for the heads of higher education institutions when forming the content of the innovative management system in the educational space:

- the members of the expert team carried out an expert assessment of the relevance of substantive areas;
- data from the study of educational needs of heads of higher education institutions in European countries "Mapping the Field: Report on the Needs and the Supply of Higher Education Leadership and Management Training in Europe Report on the Needs and the Supply of Higher Education Leadership and Management Training in Europe" – research by Peter Maassen and Atilla Pausits (Maassen & Pausits, 2012).

The following data were obtained: strategic management was noted by 74% of respondents; innovative development strategies – 57% of respondents; development of human resources of the innovative management system in the educational space – 56% of respondents; research development strategies – 43% of

respondents; organizational culture – 42% of respondents; the policy of internationalization of the innovative management system in the educational space – 36% of respondents; the policy of ensuring the quality of the innovative management system in the educational space – 32% of respondents.

The priorities for the development of the European Higher Education Area (EHEA) (2012), specified in the Bucharest Communiqué "Making the Most of Our Potential: Consolidation the European Higher Education Area". It:

- strengthening the mobility of the innovative management system in the educational space (professional and academic recognition, joint programs and degrees, balanced mobility);
- creation of quality of higher education and accessibility (social dimension of higher education, integration of research and learning, widening of access for all who wish to study, student-centered learning, recommendations for quality assurance in the European Higher Education Institution, European standards, governance in higher education and funding);
- tools of the Bologna process (ECTS, three-cycle system, supplement to the diploma, study monitoring);
- improving the employability of graduates of higher education institutions through the introduction of an innovative management system in the educational space (European research space: "research – teaching – learning", professional qualifications, the framework of qualifications, learning outcomes).

At the end of the first stage of the program of the innovative management system in the educational space, to find out the attitude, evaluation, and wishes of the applicants of higher education and management of the institution to improve the quality and efficiency of such activities, respondents were offered a questionnaire.

The results of the questionnaire survey analysis showed that 78% of the respondents positively evaluated the format and content of the proposed program of the innovative management system in the educational space.

The research methodology involved the use of both quantitative and qualitative methods.

We have integrated different data types by combining elements of the same data type, that is, those belonging to a homogeneous data type. More formally, such an approach can be defined as an ordered collection of elements of a certain type, which are addressed using one or more indices. Different types of data were classified by the number of array dimensions (one-dimensional arrays (vectors), two-dimensional (matrices), and multidimensional (three, four, or more)).

The main wishes and comments of the participants in the study of the effectiveness of the innovative management system in the educational space related to increasing interactivity in the process of expanding opportunities for sharing experiences and learning.

Among the questions of the questionnaire offered to the respondents were those whose content direction is related to determining the level of quality of higher education in higher education institutions.

452 students of higher education took part in the survey.

We are not talking about the fact that the conducted survey is representative because it cannot be considered a selective population that reproduces the characteristics of the general population. We believe that according to certain characteristics, the deviations of the sample population from the general population are not significant, which means that we claim that the obtained results for working out generalizations regarding the level of development and the formation of an idea about the subject of scientific attention can be considered at the level of the informational basis.

At the beginning of the survey, the respondents were explained the scale for evaluating the innovative management system in the educational space and the phenomenon of the quality of higher education (10 points correspond to the maximum possible level of quality of higher education, and 1 point corresponds to the minimum possible level of quality of higher education).

To positively evaluate the innovative management system, we collected and analyzed research data.

Collecting and measuring information about the given variables made it possible to answer relevant questions and evaluate the results. The purpose of all data collection was to select qualitative data that would then be translated into the analysis of all the data and allow for the creation of convincing and valid answers to the questions that were asked. A survey was conducted, which was aimed at identifying the level of relevance of various content areas in the innovative management system in the educational space. Among the questions of the questionnaire offered to the respondents were those whose content direction is related to determining the level of quality of higher education in higher education institutions.

According to the results of the analysis of the answers of higher education seekers regarding the assessment of the quality of higher education and the innovative management system in the educational space at the university and state levels, we can state that:

1. The majority of respondents believe that the level of innovative management systems in the educational space and the quality of higher education are quite satisfactory (52% of respondents rated these indicators at the level of 4 to 8 points out of 10).

During the study, 28% of the respondents claimed a very high level of innovative management system in the educational space and the quality of higher education was unexpected. We explain this assessment by the respondents' ignorance of the innovative management system in the educational space and the level of quality of higher education in other countries, as well as the low level of training of those seeking higher education.

We used the selective interview method to understand the choice of higher education applicants, during which the correctness of the first and second of the above assumptions was clarified. We can state that the vast majority of higher education students have no idea about the level of the innovative management system in the educational space the quality of higher education in general and the provision of quality educational activities by foreign institutions of higher education, in particular.

2. Every fifth respondent considers the quality of higher education in Ukraine to be low. Such a result was obtained based on the results of the analysis of the answers of the students of higher education at the university level. Such results testify to the objectivity of the assessment because it was this assessment based on fairly close, but non-identical criteria in terms of the content of scientific attention that turned out to be the same).

Let us draw attention to the fact that 20% of respondents rated the innovative management system in the educational space and the quality of higher education in general at a low level (for comparison, we cite examples of respondents from other countries regarding the feasibility of introducing an innovative management system in the educational space, only 7% of Latvian higher education graduates and 3% of Chinese students rated the level of innovative management system in the educational space and the quality of higher education in their country at a low level). Therefore, we are talking about the fact that the functioning of quality systems of higher education in general and internal and external quality assurance of educational activities, in particular, today have low efficiency and also lack of perfection of the innovative management system in the educational space.

3. The vast majority of respondents assessed the innovativeness of the management system in the educational space and the quality of education at their university at the "very high" and "high" levels (68% – total). This assessment can be explained by the fact that the majority of higher education seekers who were interviewed, get their higher education in such universities that have national status and offer a high level of education services. It was this effective indicator that was obtained at the state level according to the relevant direction of assessment. The difference between the results of the assessment at the state and university levels lies in the different values of the individual components of the final assessment: at the state level, the result was obtained in 30% of the "high level" group (from 7 to 8 points), while at the university level – 20%; in the "very high level" group (from 9 to 10 points) at the university level – 38%, and at the state level the result was 28%.

The system of ensuring management in the educational space and the quality of education in

universities that have national status clearly and well fulfills its functions.

4. Within the "adequate level" and "low level" groups at the state and university levels, comparing the results of the answers of higher education applicants, we have completely identical results – 20 and 22%, respectively.

That is, 44% of higher education students assessed the innovativeness of the management system in the educational space and the quality of education at their university of education at the university and state levels within the "sufficient level" and "low level" groups. At the level of the lowest criterion group, the assessment of experts does not have significant differences between the macro and micro levels) and this indicates the existence of problems in the functioning of the innovative management system in the educational space and the quality assurance system of higher education.

In the proposed questionnaire, the respondents were asked questions about determining the level of satisfaction of higher education seekers with the quality of higher education offered by higher education institutions. Let's analyze the answers of students of higher education:

- 76% of respondents of Ukrainian higher education institutions are satisfied with the quality of higher education offered by universities – this is the total number of answers that were identified at the level of statements "completely satisfied", "generally satisfied", "rather satisfied". For comparison, we will present the results of Chinese and Latvian students: among Chinese and Latvian students, the corresponding share of satisfaction was 70 and 72%, respectively;
- 34% of respondents, this is the total number of answers that were identified at the level of statements "rather not satisfied" and "not satisfied" – almost every fourth respondent is not satisfied with the quality of higher education. Above, we drew attention to the fact that 20% of students rated the quality of higher education, both at the university and state levels, at a low level.

This fact suggests that students have information about the quality of higher education in other countries (in the EU countries) – the existence of a basis for comparing the innovative management system in the educational space and the quality of education or about the awareness

of higher education seekers about the needs of the international labor market.

During an experimental study that investigated the importance of an innovative management system, the professional development of heads of higher education institutions, and the level of quality of higher education, we chose a statistical criterion to test the research hypothesis. We needed to answer the following questions:

- What acts as independent and dependent variables in the study?
- In what scales are the variables measured?
- How many groups are there in the experimental design?
- What are these groups (correlated or independent)?

Before choosing a statistical criterion for analyzing the research data, we defined the independent and dependent variables. An independent variable is something that the researcher manipulates. The dependent variable is the result of manipulating the independent variable. That is, the independent variable is a factor, and the dependent variable is a consequence. We are trying to explain the effect of the dependent variable that arose due to the manipulation of the independent variable.

After identifying the independent and dependent variables, our next step in choosing a statistical criterion for the analysis of experimental data is to determine in which scales these variables are measured. The measurement scale of the dependent variable helped us determine which group of statistical criteria we should apply (non-parametric or parametric). Nonparametric criteria were used to analyze nominal and ordinal data (Pearson's χ^2 test).

Choosing the necessary among these criteria, we determined the number of groups in the experimental study and the nature of these groups (independent or dependent (correlated)). Parametric criteria were used to analyze data measured in interval and ratio scales. Choosing among these criteria necessary for a specific study, we determined the number of groups in the experimental study and the nature of these groups (independent or dependent).

Methodological recommendations for the implementation of the project of the innovative research university by the peculiarities of the organization of the activity

of the management system in the educational space.

As a result of the implementation of the innovative research university project, by the peculiarities of the organization of the management system in the educational space, it is planned to create an environment to support scientific and educational processes within the higher education institution based on the use of modern telecommunications and information technologies, which will ensure:

- management of user groups and users, access rights;
- rationing and monitoring of all types of educational workload, calculation of the number of rates for the contingent of higher education applicants by specified state norms;
- modernization and formation in automatic mode, automated development of educational programs by specializations, directions, and specialties;
- calculation of the educational load of teachers, departments of the institution of higher education, and the distribution of the components of the educational load among several departments, calculation of the number of rates;
- support of remote, electronic, and mobile modes of work of higher education applicants;
- generation of the available teaching staff, the schedule of classes taking into account the contingent of higher education applicants and the classroom fund of the higher education institution;
- feedback from the teacher to the student, individual dialogue of the student through the information base of the system;
- statistical processing of the results of various types of control: semester, current, entrance, modular, knowledge retention control, state certification, practices, and course design; visualization of results in the form of graphs, charts, and tables;
- complex automation of technological processes for carrying out various types of evaluation of educational activities of higher education applicants, monitoring, as well as processing of their results;
- maintaining an archive of information, forming reporting documentation on the functioning of educational and scientific units of higher education institutions;
- support for management of the educational process, document flow between units of

higher education institutions that manage and control the educational process;

- support for decision-making regarding the motivation of educational activities of those seeking higher education, directions for improving the quality of the educational work of teachers, and improvement of methodological systems of education in various disciplines in the context of the implementation of the principles of the Bologna Declaration and the credit-module system of education in higher education;
- determination of the levels of success and success of higher education applicants: individual, by streams, groups, institutes, higher education institution as a whole, by areas of training, educational fields, specialties;
- maintaining a database with the results of various types of monitoring of educational activities, control tasks, a database of tests from various types of control, examination tickets, a database of higher education graduates and teachers.

We agree with the opinion of scientists that the development and implementation of innovative automated systems for managing the educational process of a higher education institution "will contribute to the wider use of ICT in higher education, the creation of a single informational educational environment for all subjects that are part of the university community, democratization and openness of higher education, as well as the integration of the institution of higher education into the European and global information spaces" (Plakhotnik et al., 2023).

The research methodology involved the use of the following methods:

- comparative and logical analysis to identify the features of an effective management system in the educational space. The basis of an effective management system is the control and diagnostic activity of the head of the educational institution, who occupies a leading position in the institution. Here we analyze two types of managerial activity: perceptive type of managerial activity and communicative;
- systemic analysis of management in education – to form a holistic view of the management system in the educational space and self-governance in the education system and to create an effective management system in the educational space, the importance of reforming the education

system at the current stage of society's development is shown; the role of an innovative university in creating an effective management system in the educational space is revealed; the principle provisions of the new management paradigm are highlighted; the formation of an effective management system in the educational space of higher education institutions is proposed;

- statistical method and method of analysis – to assess the state of education development, the main mechanisms and functions of control for carrying out reforms to form an effective management system in the educational space of a higher education institution were revealed; the main types of management activities are described; the principles of development of the management system in the educational space of higher education institutions and the proposed task of an innovative research university by the peculiarities of the organization of the management system in the educational space;
- sociological methods – to identify the state of the management system in the educational space from the point of view of social groups and subjects of the educational process, during which we investigated the importance of the innovative management system in the educational space, the importance of professional development of heads of higher education institutions, the level of quality of higher education in institutions higher education.

Conclusions

The global trends of modernization and reform of the entire education system present the world education system with tasks of a completely new level. Therefore, the article shows the importance of reforming the education system at the current stage of society's development to create an effective management system in the educational space. The role of an innovative university in creating an effective management system in the educational space is revealed; the principle provisions of the new management paradigm are highlighted; the formation of an effective management system in the educational space of higher education institutions is proposed.

The main mechanisms and functions of control for carrying out reforms to form an effective management system in the educational space of a higher education institution are revealed; the main types of management activities are

described.

The basis of an effective management system is the control and diagnostic activity of the head of the educational institution, who occupies a leading position in the institution. We observe here two types of managerial activity: perceptive type of managerial activity and communicative.

The main functions for controlling the management system are highlighted; the principles of the development of the management system in the educational space of higher education institutions and the task of an innovative research university by the peculiarities of the organization of the management system in the educational space is proposed.

An experimental study was conducted during which we investigated the importance of an innovative management system in the educational space, the professional development of heads of higher education institutions, and the level of quality of higher education in higher education institutions.

More than 100 representatives of higher education institutions (provosts and heads of departments) became participants in the study. A survey was conducted, which was aimed at identifying the level of relevance of various content areas in the innovative management system in the educational space. The results of the questionnaire survey analysis showed that 78% of the respondents positively evaluated the format and content of the proposed program of the innovative management system in the educational space.

Among the questions of the questionnaire offered to the respondents were those whose content direction is related to determining the level of quality of higher education in higher education institutions. 452 students of higher education took part in the survey. We are not talking about the fact that the conducted survey is representative because it cannot be considered a selective population that reproduces the characteristics of the general population. We believe that according to certain characteristics, the deviations of the sample population from the general population are not significant, which means that we claim that the obtained results for working out generalizations regarding the level of development and the formation of an idea about the subject of scientific attention can be

considered at the level of the informational basis.

Methodological recommendations for the implementation of the project of an innovative research university by the peculiarities of the organization of the management system in the educational space are offered.

We see the prospects for further scientific research in the study of the conflict-related competence of future education managers.

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