



VOL 4, No 62 (62) (2021)

The scientific heritage

(Budapest, Hungary)

The journal is registered and published in Hungary.

The journal publishes scientific studies, reports and reports about achievements in different scientific fields.

Journal is published in English, Hungarian, Polish, Russian, Ukrainian, German and French.

Articles are accepted each month.

Frequency: 24 issues per year.

Format - A4

ISSN 9215 — 0365

All articles are reviewed

Free access to the electronic version of journal

Edition of journal does not carry responsibility for the materials published in a journal.

Sending the article to the editorial the author confirms it's uniqueness and takes full responsibility for possible consequences for breaking copyright laws

Chief editor: Biro Krisztian

Managing editor: Khavash Bernat

- Gridchina Olga - Ph.D., Head of the Department of Industrial Management and Logistics (Moscow, Russian Federation)
- Singula Aleksandra - Professor, Department of Organization and Management at the University of Zagreb (Zagreb, Croatia)
- Bogdanov Dmitrij - Ph.D., candidate of pedagogical sciences, managing the laboratory (Kiev, Ukraine)
- Chukurov Valeriy - Doctor of Biological Sciences, Head of the Department of Biochemistry of the Faculty of Physics, Mathematics and Natural Sciences (Minsk, Republic of Belarus)
- Torok Dezso - Doctor of Chemistry, professor, Head of the Department of Organic Chemistry (Budapest, Hungary)
- Filipiak Pawel - doctor of political sciences, pro-rector on a management by a property complex and to the public relations (Gdansk, Poland)
- Flater Karl - Doctor of legal sciences, managing the department of theory and history of the state and legal (Koln, Germany)
- Yakushev Vasilij - Candidate of engineering sciences, associate professor of department of higher mathematics (Moscow, Russian Federation)
- Bence Orban - Doctor of sociological sciences, professor of department of philosophy of religion and religious studies (Miskolc, Hungary)
- Feld Ella - Doctor of historical sciences, managing the department of historical informatics, scientific leader of Center of economic history historical faculty (Dresden, Germany)
- Owczarek Zbigniew - Doctor of philological sciences (Warsaw, Poland)
- Shashkov Oleg - Candidate of economic sciences, associate professor of department (St. Petersburg, Russian Federation)

«The scientific heritage»

Editorial board address: Budapest, Kossuth Lajos utca 84,1204

E-mail: public@tsh-journal.com

Web: www.tsh-journal.com

CONTENT

HISTORICAL AND ARCHEOLOGICAL SCIENCES

Voroshchuk O.

USE OF THE CHAPLAIN SERVICE EXPERIENCE IN THE ARMIES OF FOREIGN STATES IN THE PROCESS OF ESTABLISHMENT AND DEVELOPMENT OF THE MILITARY CLERGY (CHAPLAINCY) INSTITUTE OF THE ARMED FORCES OF UKRAINE 3

Pecheniuk I., Yezerskyi M., Kryschniy P.

WAYS AND METHODS OF STRUGGLE AGAINST GUERRILLA (INSURGENT) FORCES IN USSR IN THE FIRST HALF OF 20TH CENTURY 9

PEDAGOGICAL SCIENCES

Ukenova A., Takuadina A.

STATISTICAL PROCESSING OF MEDICAL DATA IN THE WORKSHOP ON THE DISCIPLINE «INFORMATION AND COMMUNICATION TECHNOLOGIES» 20

Trần Trung Vỹ, Vũ Thanh Hòa

DEVELOPING COMPETENCY OF PROBLEM-SOLVING AND CREATIVITY FOR SECONDARY SCHOOL STUDENTS THROUGH EXPERIENTIAL CAREER-ORIENTED ACTIVITIES..... 25

Vũ Thanh Hòa, Nguyễn Thị Gấm

THE EDUCATIONAL ADMINISTRATORS AND TEACHERS' ACTUAL AWARENESS OF EXPERIENTIAL AND CAREER-ORIENTED ACTIVITIES AT SECONDARY SCHOOL IN QUANG NINH PROVINCE UNDER THE GENERAL EDUCATION PROGRAM 2018 27

Kazibekova N.

THE ROLE OF SCIENCE AND EDUCATION IN CREATING HUMAN CAPITAL 30

Novytska L.

FORMATION OF PROFESSIONAL COMPETENCE OF FUTURE ECONOMISTS IN THE PROCESS OF STUDYING MATHEMATICAL DISCIPLINES..... 32

Poroshin V.

A PARTICIPATIVE APPROACH TO THE PROBLEM OF PREPARING COURSES OF MILITARY UNIVERSITIES FOR POLYSUBJECT MANAGEMENT INTERACTION 42

Uvarov V.

THE IMPORTANCE OF AN ADAPTIVE APPROACH TO THE FORMATION OF FOREIGN LANGUAGE COMMUNICATIVE COMPETENCE OF STUDENTS WITH DIFFERENT INITIAL LEVELS OF TRAINING (ON THE EXAMPLE OF A TEXTBOOK FOR BUSINESS ENGLISH) 45

PSYCHOLOGICAL SCIENCES

Zak A.

DIAGNOSIS OF REASONING SKILLS IN YOUNGER ADOLESCENTS 50

Akimova M., Persiyantseva S.

PHOTOTHERAPY AS A TOOL FOR SELF-ASSESSMENT CORRECTION 55

2) тактическое управление развитием высшего образования (формирование стандартов и образовательных программ системы непрерывного образования; социально-педагогические программы развития высшего образования);

3) оперативное управление развитием высшего образования (оперативное планирование кадровых, экономических ресурсов; обеспечение контроля качества образования, аттестации кадров, финансовых ресурсов; безопасность сохранения образовательной сети; юридическое и нормативно-правовое обеспечение).

Все это следует осуществить в русле таких современных тенденций мирового развития, обуславливающих существенные изменения в системе высшего образования, как рост значения человеческого капитала, что требует интенсивное, опережающее развитие образования молодежи и взрослого населения; динамичное развитие экономики, рост конкуренции, сокращение сферы неквалифицированного и малоквалифицированного труда; глубокие структурные изменения в сфере занятости, определяющие постоянную потребность в повышении профессиональной квалификации и переподготовке работников для роста их профессиональной мобильности.

FORMATION OF PROFESSIONAL COMPETENCE OF FUTURE ECONOMISTS IN THE PROCESS OF STUDYING MATHEMATICAL DISCIPLINES

Novytska L.

*Candidate of Pedagogical Sciences, Ph.D.,
Associate Professor Department of Mathematics,
Physics and Computer Technology*

Vinnitsia National Agrarian University, Vinnitsa, Ukraine

DOI: [10.24412/9215-0365-2021-62-4-32-42](https://doi.org/10.24412/9215-0365-2021-62-4-32-42)

Abstract

The article is devoted to the study of the competence approach in the context of training future specialists in economics and related concepts: «competence», «competency», «professional competence». It is proved that mathematical competence plays an important role in the formation of professional competence.

It was found out that the following pedagogical conditions are essential for the formation of the appropriate level of professional competence of future bachelors of economics in the process of teaching mathematical disciplines: development of the future bachelor of economic profile ability to mathematical modeling of economic processes; improving students' skills in using ICT in the learning process; formation and development of cognitive independence of future bachelors of economics.

Keywords: competence approach, competencies, competence, professional competence, mathematical competence, mathematical disciplines, economic specialists.

Introduction. Socio-economic reforms, Ukraine's integration into the international educational and economic community, the development of information and telecommunication technologies determine new, more stringent requirements for specialists in economic, industrial, and managerial activities. Of particular importance is the problem of training a competitive specialist in the economic field, who has a high level of professional and personal qualities that contribute to its successful adaptation to new socio-economic conditions, professional development, development and implementation of modern technologies. Higher educational institutions, in particular agricultural ones, are

Только тогда высшее образование сможет выполнить принадлежащую ему важную роль в реализации концепции развития человеческого капитала, где значимость социального аспекта в приобретении, расширении и обновлении знаний значительно возрастает.

Список литературы

1. Алиев М.А., Сабанчиева Л.Н. Организационно-экономический механизм управления взаимодействием образования и науки в вузе. – Махачкала: ALEPH, 2014, 127 с.

2. Алиев М.А. Экономические проблемы развития взаимосвязи образования и производства. – Махачкала: ALEPH, 2019. 194 с.

3. Березовский В.А., Семенова Т.Ю. Экономическая природа образования // Экономика образования. 2013. № 6 (79).

4. Ощепкова Н.Г. К вопросу о маркетинге на рынке образовательных услуг // Экономика образования. 2013. № 3 (76).

5. Казибеева Н.А. Актуальные проблемы взаимодействия науки и образования. Монография. Интерактив Плюс, Чебоксары. 2018.

faced with the task of improving the professional training of future economists, taking into account the promising areas of modernization of the vocational education system. The activities of economic specialists involve performing various mathematical operations (assessing various financial risks, reducing their negative consequences; looking for ways to optimize business, identify «weaknesses» in the company or enterprise; develop a business plan, calculate investment returns, etc.). Therefore, the requirements for the quality of professional training of future economists, in particular for the quality of their mathematical competencies, are constantly increasing.

The need to improve the quality and competitiveness of education in the new socio-economic conditions, providing the economic sector with qualified specialists, raising the professional and general cultural level of graduates of higher education institutions is defined by the laws of Ukraine «On Education», «On Higher Education». The key task of education in the XXI century is the formation of a competent personality.

In order to implement the set tasks, it is necessary to develop new approaches to the training of specialists in the economic field, in particular to the formation of mathematical competencies of bachelors of economic specialties during the study of mathematical disciplines in higher education. Without teaching mathematics and experience in its use, neither high-quality training nor effective activity of a specialist is possible.

The purpose of the study is to develop a model of professional training of future economists, aimed at the formation of professional competence.

The modern labor market requires graduates to be able to use the acquired theoretical knowledge in non-standard situations and situations that are constantly changing; there is a transition from a society in which knowledge is preferred to a society consisting of competent citizens. The same opinion is shared by the President of the National Academy of Pedagogical Sciences of Ukraine V. Kremen, who notes that today we need specialists with broad and deep knowledge and skills who are able to apply them in an unusual situation and at the same time strive to be critically competent in the field of their professional activity and public life [1].

In the implementation of the main professional functions of the future economist (study the market; forecast the dynamics of demand, supply and market prices for products; develop standards and norms of expenditure of limited economic resources; develop investment projects, etc.) requires not only fundamental economic training, professional knowledge, calculation-analytical skills, but also physiological qualities, such as stress resistance, endurance, flexibility, because its work requires significant energy expenditure, high concentration, memory, observation.

After graduating from university, a student with a bachelor's degree in economics is a person with a fundamental humanitarian and thorough economic theoretical training, a high general level of education and culture; a person who has the appropriate scientific potential for a wide choice of specific areas of practice, has the ability to continue their studies independently. The bachelor must have developed analytical skills, a broad worldview, emotional stability, the ability to work in a shortage of information, resources and time, be proactive and persistent, constantly replenish their knowledge.

Currently, specialists in the field of economics expect from higher education: the provision of a sufficient level of knowledge, skills, abilities that enable them to compete in the modern labor market; quality training with the use of computer and information and communication technologies; creating favorable conditions for learning foreign languages, taking into account the professional orientation.

Thus, higher education institutions have a clear obligation to provide quality education to their graduates, which guarantees the compliance of the obtained learning outcomes with the requirements of the economic space of European countries, developing their dynamism, mobility, ability to work in uncertain situations.

The professional training of future economists should be considered precisely through the prism of the competence approach, taking into account the requirements of the modern labor market for the training of future highly qualified specialists.

The works of Ukrainian scientists N. Bibik, O. Honcharova, M. Zhaldak, I. Yermakova, O. Matyash, V. Petruk, O. Pometun, O. Spirina are devoted to the research of the problem of introduction of the competence approach in the educational environment; Russian: V. Bolotov, I. Winter, A. Khutorsky, foreign: G. Barrett, R. Mirabla, J. Raven, R. White and others.

The analysis of literature sources shows the unanimity of scientists that the end result of the educational process is the ability of future professionals to make effective decisions, adapt to rapid changes in society, solve problems in unusual situations, relying on knowledge gained during training.

In the monograph O. Matyash it is noted that the competence approach focuses on the results of education, which are recognized as important in professional activities. The first place is given to the ability to solve professional practical problems, rather than a broad knowledge of the professional about professional activities. The competency approach should create the preconditions for greater approximation of educational outcomes to the needs and requirements of the labor market, further development of educational technologies and the education system as a whole [2].

V. Khiminets emphasizes that the competence approach shifts the emphasis from the process of accumulation of knowledge, skills and abilities in the plane of formation and development in the individual's ability to act and creatively apply the acquired knowledge and experience in different life situations [3].

A. Khutorsky [4] defines the competency approach as an approach to the organization of the educational process, aimed at acquiring a certain amount of knowledge and experience that allows him to draw conclusions about something, convincingly express their views, act adequately in different situations.

Based on the opinions of researchers and our own understanding of the research problem, we define a competency-based approach to the training of future economists as a new form of organization of the educational process, which will improve the conditions of knowledge, skills and abilities of the future specialist solved.

The competency approach is the basis for the modernization of higher education and creates an opportunity to train qualified professionals who would be a worthy competitor in the labor market and would be able to quickly adapt to changes in society.

Summarizing the above, we can say that the competency approach in education contributes to the training of a specialist who will ensure his suitability for employment by:

- teaching students to learn;
- transition from the trend of «memorized-passed-forgotten» to the realization of the importance of acquired knowledge, skills and abilities not only for successful higher education, but also in everyday and professional activities;
- the transition from not always appropriate saturation of the content of academic disciplines with a significant amount of theoretical material to the development and improvement of the ability to work with it (find, analyze, synthesize, highlight, summarize, systematize, compare, etc.);
- transition from teacher-centered to student-centered learning.

One of the main incentives for the implementation of the competence approach in the educational environment of Ukraine was the requirements of business and entrepreneurship. Modern employers in most countries have no claims to the level of knowledge of university graduates, but they often point out as a disadvantage of modern higher education the uncertainty of graduates and lack of experience in applying knowledge in decision-making.

Economic, social and other factors of civilization have increased public interest in the results of education and led to the emergence of new, more realistic and important indicators of these results. Such indicators in most countries have become the competencies that determine the readiness of students for life, its participation in society. Ensuring the competitiveness of graduates in the modern labor market can be done if the level of their training, which is formed during competency-based learning, corresponds to the willingness and ability of students to independently solve real production problems.

The main categories of this approach are «competence» and «competency» in different proportions, because in some works these concepts are distinguished, and in others - are considered synonyms.

A. Khutorsky [4, p. 60] offers the following definition of the relevant concepts: «Competence – the willingness to use the acquired knowledge, skills and abilities, as well as ways of working in life to solve practical and theoretical problems. Competency – a person's possession of the relevant competence, which includes his personal attitude to this competence and the subject of activity».

«The general ability of a specialist to mobilize knowledge, skills and abilities in professional activities, as well as generalized ways of performing actions that determine the ability to act independently and responsibly within the competence: competence is manifested in specific situations, certain circumstances and is the integration of knowledge, skills, experience and social -professional situation»- says E. Zeyer [5, p. 36].

G. Selevko [6], believes that competence is an educational result, which is manifested in the readiness of the graduate, in the actual mastery of his methods and means of activity, in the ability to cope with the tasks;

a form of combination of knowledge, skills and abilities that allows you to set and achieve goals in the transformation of the environment. Competence is an integral quality of a person, which is manifested in his general ability and readiness for activity, based on knowledge and experience acquired in the process of learning and socialization and focused on independent and successful participation in activities.

Unlike the concept of «competence», competence is separate from the subject and is considered as a pre-determined social requirement for the professional competence of the employee, which is necessary for its quality productive activity. The real result of the acquisition of competencies is competence, which in contrast to competencies involves personal characteristics, the attitude of the employee to the subject of activity. Competencies can be deduced as real requirements to professional and professional abilities and knowledge, ways of activity, experience of creative activity, attitudes to life values, qualities of the person operating in a society. Competence is a concept that relates to the individual, reveals aspects of his behavior and provides professional quality work. Competence is a concept related to work and characterizes the area of professional activity in which the employee is competent.

Along with the concepts of «competence», «competency» in the scientific and pedagogical literature, the concept of «professional competence» is studied.

Researcher I. Drach [7] defines the professional competence of university graduates as a set of general cultural competence, civic competence, functional competence, social competence, motivational competence.

L. Voloshko [8] notes that professional competence is a special type of organization of special knowledge, skills and abilities of a specialist, which provides him with the opportunity to make effective decisions in the process of professional activity. Professional competence reflects the essence of the specialty mastered by the student, so it can be characterized as a conceptual basis for training. It reflects the level of formation of professional knowledge, skills and abilities, his professional erudition, which allows you to successfully solve three types of professional problems: stereotypical, diagnostic and heuristic, provided by the regulations of higher education.

In the future, we will use these concepts, understanding their essence as follows:

- competence – the established rate of knowledge, skills and abilities, methods of activity, which are set for the quality of the tasks;
- competence – mastering a set of relevant competencies, which are manifested in its general ability and readiness for certain activities;
- professional competence – an integral personal and professional characteristics of the specialist, which determines the ability of the specialist to implement knowledge, skills, experience and personal qualities for successful activity in the professional sphere.

An important task of modern higher education is to understand the structure of professional competence

of the future specialist, the mastery of which in the educational process, thanks to specially created conditions, will ensure the quality of education.

The analysis of the Bachelor of Science in Economics allowed to single out the professional competencies of the future specialist-economist in the complex of socio-personal, general professional, general scientific and functional competencies (Fig. 1).

In today's market relations, economic professionals must be ready to analyze and quantify large in volume and diverse in content flows of economic information, which is impossible without the use of mathematical models. This necessitates the widespread use of mathematical methods in economic analysis and requires future economists to develop mathematical competence. Therefore, an important component of professional training of future economists is the acquisition of mathematical competence.

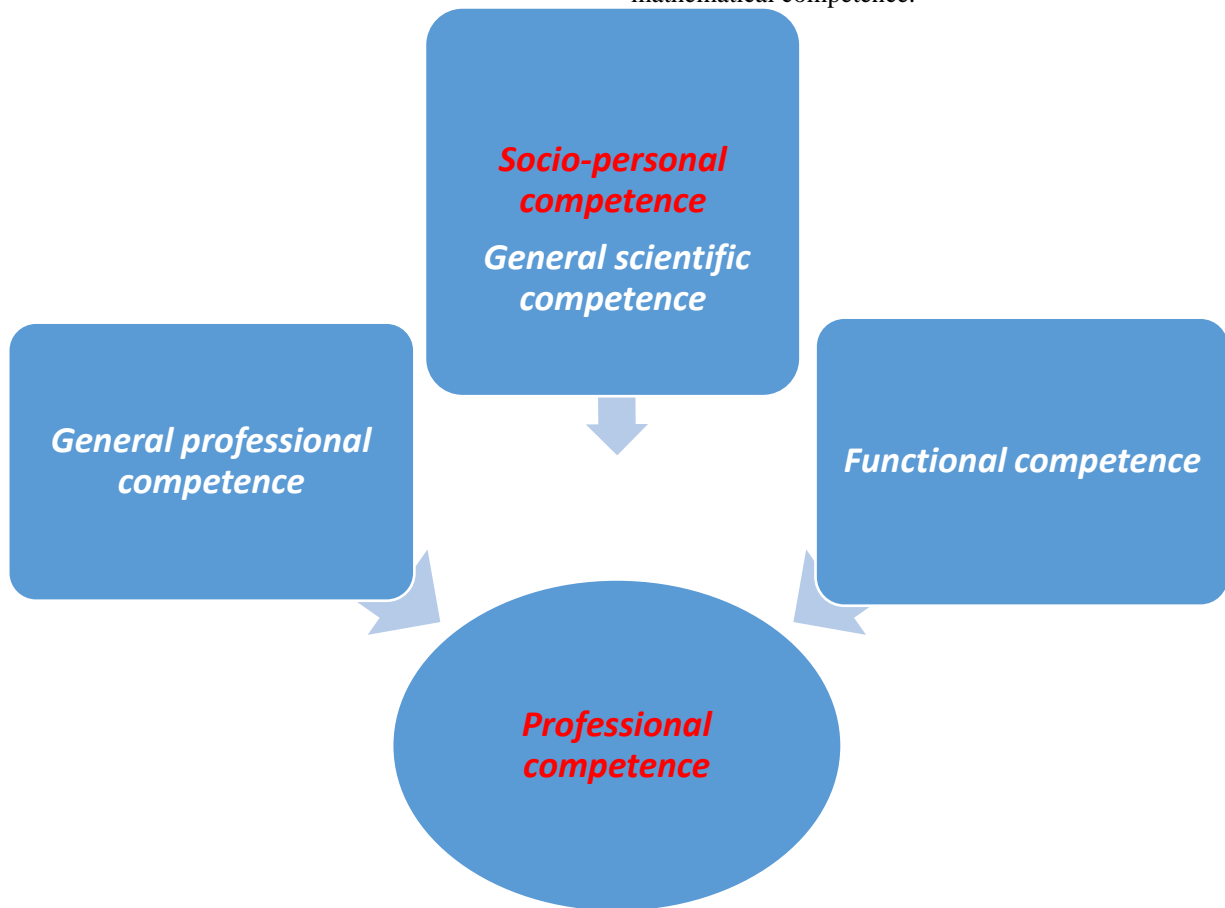


Fig. 1. The structure of professional competence of the future bachelor

In [9] S. Rakov notes that mathematical competence is the ability to see and apply mathematics in real life, understand the content and methods of mathematical modeling, the ability to build a mathematical model, investigate its methods of mathematics, interpret the results, evaluate calculation errors and relate

mathematical competencies to subject-branch, as «mathematics occupies a very special place in the system of human knowledge, playing the role of universal and most powerful method of modern science» (Fig. 2).

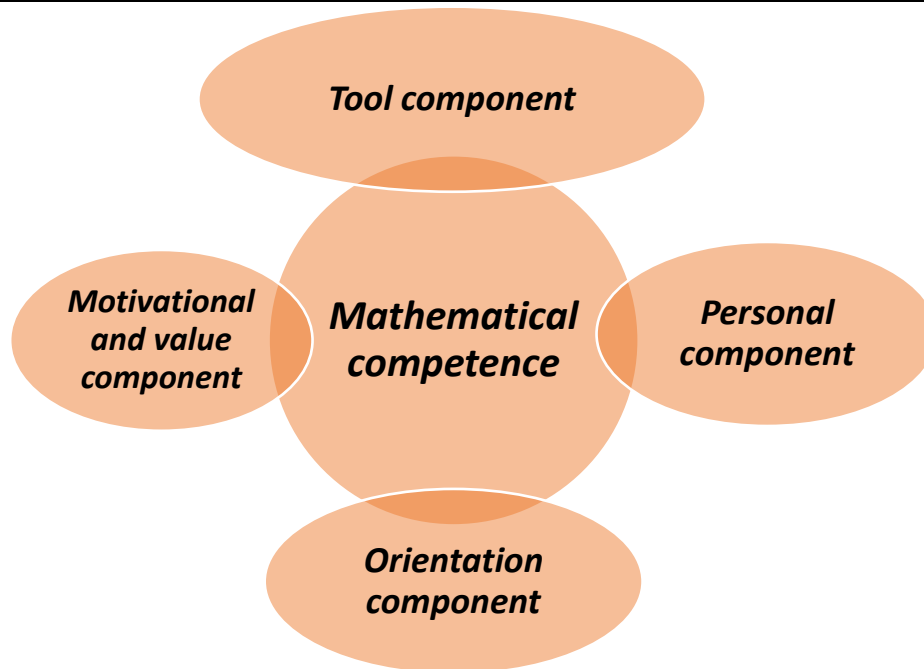


Fig. 2. The structure of mathematical competence of the economist

An important component of professional training of modern economic professionals is the study of mathematical disciplines, in particular, «Higher Mathematics», «Probability Theory and Mathematical Statistics». It should be noted that of the 25 credits allocated for the cycle of natural sciences, the share belongs to mathematical disciplines. To study the mathematical disciplines «Higher Mathematics», «Probability Theory and Mathematical Statistics», 11 credits are allocated, most of which – 7 for the discipline «Higher Mathematics».

Mathematical disciplines cover a significant part of the fundamental component of economic education and provide students with the necessary mathematical tools, develop the ability to effectively, creatively use the mathematical apparatus in future professional activities, increase the level of professional competence.

Thus, G. Dutka notes that in terms of vocational education, classical mathematics courses should not only be professionally oriented, but also form a fundamental basis for professional and special knowledge. In this case, the logic of mathematical science, the integrity of the course of mathematics must be preserved and passed on to students. The method of teaching mathematical disciplines should gradually, depending on the level of preparation of students, introduce them into the scope of application of mathematics in economic analysis [10].

The fundamental basis in the mathematical training of future economists is the discipline of «Higher Mathematics». The task of the discipline is to study the basic principles and tools of the mathematical apparatus used to solve economic problems. Thus, «Higher Mathematics» – a discipline that forms the fundamental training of specialists in economics.

Classical sections of higher mathematics reveal the economic interpretation of the most important concepts of mathematics and their possible application in economic theory; introduce students to special methods of solving applied problems of economic content. The

content of the course of higher mathematics is designed to form the basis of economic and mathematical modeling in future specialists in economic areas of training. Certain sections or topics in higher mathematics provide consideration of the simplest economic and mathematical models and are aimed at developing students' skills and abilities to compose, research and analyze them.

In cases where the mathematical model adequately reflects the problem situation, it becomes an extremely important research tool. The mathematical model available for the experiment, quite accurate in displaying the relationships between variables and parameters, makes it possible to accurately estimate the errors and the causes of these errors.

In particular, the section «Elements of vector algebra and analytic geometry» is related to linear models of production functions: supply and demand functions, utility; profitability of transportation.

Section «Elements of linear algebra» – with a model of intersectoral balance, a linear model of exchange. Matrix models are successfully used in the analysis and planning of production, because they simply and clearly reflect the properties of different objects.

The section «Differential calculus» is widely used in economic analysis. Problems for calculating the marginal cost of production, marginal utility, marginal profit are solved by differentiating the relevant mathematical models. The class of tasks for finding the optimal values of economic indicators, such as the highest productivity, maximum profit, minimum costs, etc. also require the use of a differential calculus. Based on this section, the concept of elasticity of function is introduced in economics, which is used to analyze forecasts of pricing policy, demand and consumption.

Using the theoretical provisions of the section «Integral calculus», you can determine the degree of une-

ven distribution of income, capital growth in known investments, calculate the average values of economic functions and others.

Section «Differential equations» – a widely used apparatus for the study of various processes in economic research. In economics, differential equations are used to describe population dynamics, modeling economic growth, inflation, public debt, unemployment, and the relationship between money and real markets.

Thus, the discipline «Higher Mathematics» plays a key role in the training of future economists. In the process of its teaching the students' conviction in the necessity of deep mastering of the basic concepts and methods of mathematics is gradually formed; students' interest in mathematics increases, understanding of its concepts and methods deepens; increases the effectiveness of interdisciplinary links with basic economic disciplines; students acquire practical skills of mathematical modeling in economics and the application of mathematical methods in economic analysis.

Therefore, students of economics need to prove the need to study the sections of higher mathematics for successful mastery of professional disciplines, as well as to develop the ability to analyze economic processes described by the relevant mathematical models.

The discipline «Probability Theory and Mathematical Statistics» plays an equally important role in the professional training of specialists in economics. According to the educational-professional program of preparation of the bachelor of economic sphere the purpose of discipline is studying of the basic methods of quantitative measurement of casualness of action of the factors influencing any processes; basics of mathematical statistics used in the planning, organization and management of production; product quality assessment; systematic analysis of economic structures and production processes.

The training course is based on the knowledge gained during the study of the following sections of «Higher Mathematics», in particular, the sections «Differential calculus of functions of one and many variables», «Integral calculus», «Series».

In the course of probability theory and mathematical statistics, the theory of random processes is studied, which considers the patterns of random phenomena in the dynamics of their development. Such random processes describe many economic and industrial phenomena. These include exchange rate fluctuations, stock prices, commodity prices, expected value of money, bank assets, queues and the number of service requests at any given time, and so on.

It is the basis for the study of the discipline «Econometrics», used in the study of professional disciplines. Basic concepts and terms have economic interpretation (probability theory theorems, random variables, distribution laws and numerical characteristics, etc.) and a number of theories of economic significance (elements of random process theory and queuing theory, elements of regression theory, elements of analysis of variance, elements of correlation theory).

Thus, mathematical disciplines in the professional training of students are designed to ensure the development and formation of individual components of the professional competence of the future specialist in the economic field.

We give an important place in the formation of professional competence of future economists to pedagogical conditions. We consider pedagogical conditions as factors that ensure effective interaction of components of the pedagogical process to achieve the goal, improve the relationship between teachers and students in the learning process to solve specific problems, promote the activation of educational and cognitive activities of future professionals, their independence, professional interest, initiative and more. We substantiate the pedagogical conditions for the formation of professional competence of future bachelors of economics.

Today, future economists are forced to work in a market economy, and their successful work after graduation is inconceivable without a thorough knowledge of mathematical modeling of economic processes and information technology. The study of complex economic processes is impossible without the modeling process. Modeling serves as a prerequisite and tool for the analysis of economic processes, as well as a means of making informed decisions, forecasting, business planning and management of economic objects.

In the works of scientists G. Beregova, G. Dutka, L. Nichugovskaya, M. Pratsovyto, K. Rumyantseva, D. Tyurina, L. Friedman it is emphasized that the use of mathematical modeling in the educational process contributes to the formation of professional competence of students and increase the effectiveness of their educational activities.

Consideration of applied problems of economic content in the process of teaching mathematics allows students to demonstrate the existence of deep and strong links between economics and mathematics. Construction and research of mathematical models contribute to the development of skills in the application of mathematical methods for the analysis of real economic processes. The purpose of acquaintance with elements of economy in the course of studying of mathematics is formation at students of an economic way of thinking. Illustration of mathematical constructions by meaningful economic realities, demonstration and independent construction of mathematical models of economics available to students, implantation of economic content into the mathematics curriculum show that in the process of interaction of these disciplines a number of goals of economic disciplines are achieved [10].

The basics of mathematical modeling of economic processes in bachelors in economics are formed in the process of studying mathematical disciplines that help to form a basic bank of models.

The concept of teaching mathematical disciplines to students of economics provides [11]: accessible and comprehensive study of basic concepts and methods of classical sections of mathematics and the implementation of their links with modern economic concepts and current problems of a market economy; creating favorable conditions for students to master the basic concepts and methods of mathematics that are most often

used in economics; formation of students' abilities and skills to compose, research and analyze the simplest economic and mathematical models.

Thus, the development of the future bachelor of economics ability to mathematically model economic processes is an important pedagogical condition for the formation of his professional competence.

We see the effectiveness of the development of the future bachelor of economic profile ability to mathematically model economic processes and phenomena in the filling of mathematical disciplines with applied problems and individual issues that are professionally important for future economists. These provisions can be implemented if the system of professionally-oriented tasks is used in the learning process.

The system of professionally-oriented problems in each mathematical discipline has a positive effect on improving the efficiency of the process of forming the professional competence of future economists. Tasks of economic content make it possible to illustrate the application of educational material of the discipline to solve problems that arise in the professional activities of the economist.

Consider the features of the selected system of problems of economic content in the discipline «Probability Theory and Mathematical Statistics» on the topic: «Basic theorems of probability theory». Learning objective: consolidation of the theorems of addition and multiplication of probabilities, the formula of total probability and the Bayesian formula, Bernoulli's formula; formation of the ability to use educational material in problems of economic content. Acquisition by students of experience in decision-making on effective activity of the enterprise.

1. The bank has two branches that bring profits to the bank. The probability that the first branch will make a profit is 0.95, and the probability that the second will be 0.9. The share of profits of the first branch is 0.4, and the second - 0.6. Find the probability of the following events:

a) A – «the bank received a profit from its branches»; b) B – «the bank received a profit from the first branch».

2. Securities may rise in price in one day by 4% with a probability of 0.8, or fall by 3% with a probability of 0.3. Assuming that daily prices are independent, calculate the probability of the following events:

a) A – «within four days the securities will rise in price»;

b) B – «three days the price of paper will rise, and one day – cheaper».

3. 15 securities are listed on the stock exchange. The probability that they will rise in price in one day is 0.7. Determine the probability of rising prices:

a) exactly 6 securities;

b) not more than 6 securities;

c) less than 6 securities;

d) from 4 to 6 securities.

The proposed system of professionally-oriented problems provides an opportunity to demonstrate to students by specific examples how abstract mathematical concepts can be effectively applied to solving problems of economic content.

The priority of training future competitive economists in the formation of the information society in Ukraine should be not only the formation of their entrepreneurship, mobility, stress, need for sustainable professional self-development, but also the ability to navigate information flows, use modern data processing methods, optimization of activity by means of information and communication technologies (ICT).

The issue of using ICT in the educational process is a topical subject of research of many scientists: R. Gurevich, M. Zhaldak, N. Morse, T. Belt, Y. Trius and others. Almost all researchers note the high efficiency of the use of ICT in the educational process.

In our study, ICT in learning is an information-educational environment that meets the diverse information needs of learners and learners.

Peculiarities of professional activity of economists in modern conditions are: high intense intellectual activity of specialists, due to the nature of the information environment in which the economist works, and the complexity of problems that require prompt resolution in the shortest possible time; purposeful use of information technologies in professional activity; continuous control over changes in legislation in the economic sector; independence, which requires from the specialist the ability to make effective decisions independently, to record and confirm the facts, to act promptly; sociability – the ability to communicate with people, navigate in difficult circumstances; self-education throughout the professional activity.

Peculiarities of activity of future bachelors of economics in modern conditions determine the requirements for the use of new technologies for managing students' educational activities, including ICT. That is why scientists and methodologists study the use of ICT in training, determine their impact on the formation of professional competence.

Analysis of research by V. Bepalko, E. Mashbits, N. Talyzina shows that the use of ICT in the educational process of future bachelors in economics contributes to: improving the efficiency and quality of the learning process, the activity of cognitive activity; development of the student's personality, his preparation for a comfortable life in the information society; development of different types of thinking: constructive, logical, algorithmic; development of skills of modeling tasks or situations; formation of research skills; formation of skills to offer solutions in difficult situations or to make optimal decisions; formation of information culture, ability to process information; development of communication skills.

The results of research by E. Mashbits [12] prove that in terms of its functionality, the computer can already today become an almost ideal means of learning and increasing the cognitive activity of students.

Therefore, it is possible and necessary to use ICT as a means of supporting the learning process at all its stages, in particular, in teaching and explaining new information; actualization of the necessary knowledge, repetition, generalization, consolidation of the studied educational material; performing educational tasks, solving professional problems, preparing projects, etc.; independent and extracurricular work; control and self-

control of educational achievements; self-education, informal education, etc.

The results of our study suggest that the use of ICT provides the development and formation of features of future bachelors in economics, such as:

- ability to obtain new information in the required field;
- think constructively and algorithmically based on the experience of practical use of software products based on reproductive-algorithmic learning technology, in particular, summarizing educational material, solving practical typical problems, participating in discussions and game situations);
- creative potential in the course of research tasks, the use of modeling software environments, which involves the use of such learning technologies as problem-based learning, business games, project method, etc.;
- communication skills in the process of game and project activities, skills of making optimal decisions during experiments.

The use of ICT by students is due to the need for highly qualified training for professional activities. The essence of such training is to master the methods of solving professional problems with the help of information technology, the development of intuition, creative solutions. Such professional qualities have always been valued by professionals, and now their role in connection with the introduction of computer technology has grown even more, so it is necessary to teach students to creatively use information to make decisions based on economic and moral and aesthetic aspects in professional activities [13].

Thus, we single out the improvement of students' skills in the use of ICT in the educational process as one of the main pedagogical conditions for the formation of their professional competence.

Our research suggests that one of the key pedagogical conditions for the formation of professional competence of the future bachelor of economics is to improve his skills to use new information and computer technologies in the learning process.

According to our research, the use of ICT in the management of higher education is an important factor in improving the conditions for the formation of professional competence of the future economist. The use of management software products demonstrates to students the techniques of planning, formation of goals and objectives of the organization with the help of information technology, the introduction of innovative forms and methods in professional activities and more.

In particular, in recent years there have been software products, the use of which helps to increase the efficiency of all components of the process of development and implementation of management decisions: obtaining the necessary information, developing management decisions, bringing management decisions to executors, monitoring management decisions and more. In our study, we proposed the system «Socrates», which is an integrated client-server training system, which implements the functions of distance learning and management of the educational institution.

It is important to keep electronic records of student performance in universities, which provides systematization and generalization of data on student performance, the ability to diagnose the results of the educational process, optimize and increase the efficiency of the educational process, illustrate the process of monitoring education and improve the training of future bachelors of economics.

In addition to student performance, the «Socrates» system provides information about academic disciplines: the number of lectures, laboratory, practical classes, the number of points for each work, thematic classes, etc. Thus, the student gets the opportunity to plan an individual learning process and receives relevant information within each discipline.

For the teacher, the system is a convenient tool for keeping an electronic journal of current performance and student attendance, provides a convenient menu for the formation of ratings, graphs, statistics on the average score, the percentage of attendance.

One of the important advantages of the system is to allow parents to remotely monitor the progress, educational debts of the student. Parents receive information about the academic performance of students in academic disciplines. Prospective employers may be interested in information about student performance.

The use of information systems for keeping track of the success of future bachelors of economics allows to improve the quality of educational services in universities, allows students to remotely receive the necessary information about the educational process, improve the assessment system and increase the effectiveness of professional competence.

Thus, the use of information technology in the management of higher education in economics affects the conditions for the formation of professional competence of future bachelors of economics.

Another important factor of competitiveness in the labor market is the ability to think creatively and quickly make non-standard decisions, acquire knowledge independently and apply them in new professional conditions. In this regard, the development of cognitive independence of students of economic higher educational institutions acquires special significance in the process of professional training. Today, information is characterized by a large volume and variability, so the economic specialist must be able to quickly process information flows, use modern technologies to obtain the necessary data, increase efficiency and effectiveness.

Analysis of scientific sources showed that the problem of forming knowledge, skills, including professional, through the development of cognitive independence of students was and remains relevant. Certain provisions on the need for the formation and development of cognitive independence of students in the learning process, its role in the acquisition of knowledge, skills, abilities and expediency of managing the independence of students are revealed in the works of I.Ya. Lerner, O.Ya. Savchenko, K.D. Ushinsky and others.

The ability of the future economist to succeed in professional activities depends entirely on his willingness to self-improvement of professional competencies. The solution to this problem is carried out through the search for content, forms, methods and means of learning that provide opportunities for self-development and self-realization of the individual.

The concept of «cognitive independence» in the scientific literature is considered from different points of view:

- cognitive independence is the ability and desire to creatively approach the surrounding reality, that knowledge, skills and abilities only form cognitive independence when they become an instrument of creative activity (I.Ya. Lerner [14]);

- cognitive independence of the learner is manifested in the need and ability to think independently, the ability to navigate in a new situation, to see the issues, tasks and find a way to solve them (M.O. Danilov [15]);

- cognitive independence covers sensory perception, memory and various types of actions, while the determining factor in the development of independence is the emotional attitude of the individual to the object and to the process of cognition (O.Ya. Savchenko [16]);

- cognitive independence is a quality of personality that combines the ability to acquire new knowledge and creatively apply them in different situations with the desire for such work (L.G. Podoliak [17]);

- cognitive independence – one of the main integrative qualities of personality, which is associated with positive motivation to learn, the formation of a system of knowledge and methods of activity for the application of existing and acquisition of new knowledge and skills (T.I. Shamova [18]).

A significant number of scientific works are devoted to the study of the problem of increasing the efficiency of the organization of cognitive independence of students.

The problem of organizing the cognitive independence of students is considered by A.M. Alekseyuk, I.Ya. Lerner, M.I. Smetansky and others.

The analysis of results of scientific works gives the chance to allocate actual questions of formation of cognitive independence of students-economists from the point of view of tasks of formation of professional competence of future bachelors of economy.

The formation of professional competence of future bachelors of economics is influenced by didactic conditions for organizing independent learning activities in combination with the use of the latest pedagogical learning technologies: case studies, problem-based learning, learning technology in small groups based on an integrated approach to knowledge and skills. training of future economists.

In our study, we consider the cognitive independence of future bachelors of economics as a necessary prerequisite for the ability to self-improvement of professional competence. It is necessary that the future specialist not only meets the requirements of regulations on professional activity, but most importantly, to be as ready as possible to predict the development of

professional events in various circumstances, achieving effective results of activity; to build hierarchies of goals of professional activity in accordance with the production situation, placing emphasis on professional activity according to the requirements of the employer; to meet the requirements that have arisen in real professional activity, and not in accordance with the qualification requirements.

Professional development of personality is a dynamic process of development, adequate activity, which involves the formation of professional orientation, professional competence and professionally important qualities, finding optimal ways of creative and quality performance of professional activities in accordance with individual psychological characteristics [19].

Thus, among the pedagogical conditions for the formation of professional competence of future bachelors of economics, we highlight the formation and development of their cognitive independence. Based on our research, we will illustrate possible ways of forming students' cognitive independence in the conditions of using project-based learning technologies.

Project-based learning technology is a technology of organization of the educational process, in which students acquire mathematical competence in the process of project tasks that link their educational, scientific, methodological and organizational activities, in the process of which they master the skills of planning, organization, implementation and appropriate registration of scientific search results. Involvement of students in such activities is possible only if a corresponding educational environment is created in the university, in which an important place belongs to active cognitive independence.

Tasks-projects contribute to the formation of mathematical, cognitive, informative, technological components of professional competence; development of the future bachelor of economics ability to independently acquire new knowledge from various sources of information, use the acquired knowledge and skills for self-education; make decisions and act on their own initiative.

Consider the features of the educational project on the topic: «Application of methods of integral calculus in economic analysis» in the study of the discipline «Higher Mathematics». The task of the project is to identify the features of the methods of integral calculus as an effective means for students to acquire the ability to use the mathematical apparatus to solve economic problems.

The purpose of the project: to systematize and generalize the knowledge and skills of students on the topic of «Integral calculus» and to illustrate integral calculus as one of the means of solving problems of economic content.

In accordance with the task and purpose of the project, we formulate the following specific tasks: to reveal the historical aspect of the topic; to develop a system of problems that would contain tasks for calculation, research, construction, proof; revealed the application of integral calculus in economic analysis and the essence

of concepts from an economic point of view; solve system problems and establish their relationship; illustrate the solution of one problem with the help of ICT; to prepare a report-presentation of the developed project; take part in the defense of the created project.

During the project the applied nature of the educational material is revealed, the students' conviction in the necessity of acquiring mathematical competence for their further successful study and professional activity is gradually formed. The proposed project reveals various features of the educational material, which is consolidated and systematized. The implementation of the project forms in students the ability to research, independence, concentration, ability to self-control, self-education, the ability to make decisions to effectively solve professional problems.

Conclusions. Thus, the competency approach is a leading guideline aimed at solving the problem of improving the professional training of future economists, which we consider as an integral personal and professional characteristics that indicate the willingness and ability of future professionals to comprehensively and effectively solve production problems. The following pedagogical conditions are essential for the formation of the appropriate level of professional competence of future bachelors of economics in the process of teaching mathematical disciplines: development of the future bachelor of economic profile ability to mathematical modeling of economic processes and phenomena; improving students' skills in using ICT in the learning process; formation and development of cognitive independence of future bachelors of economics (Fig. 3).

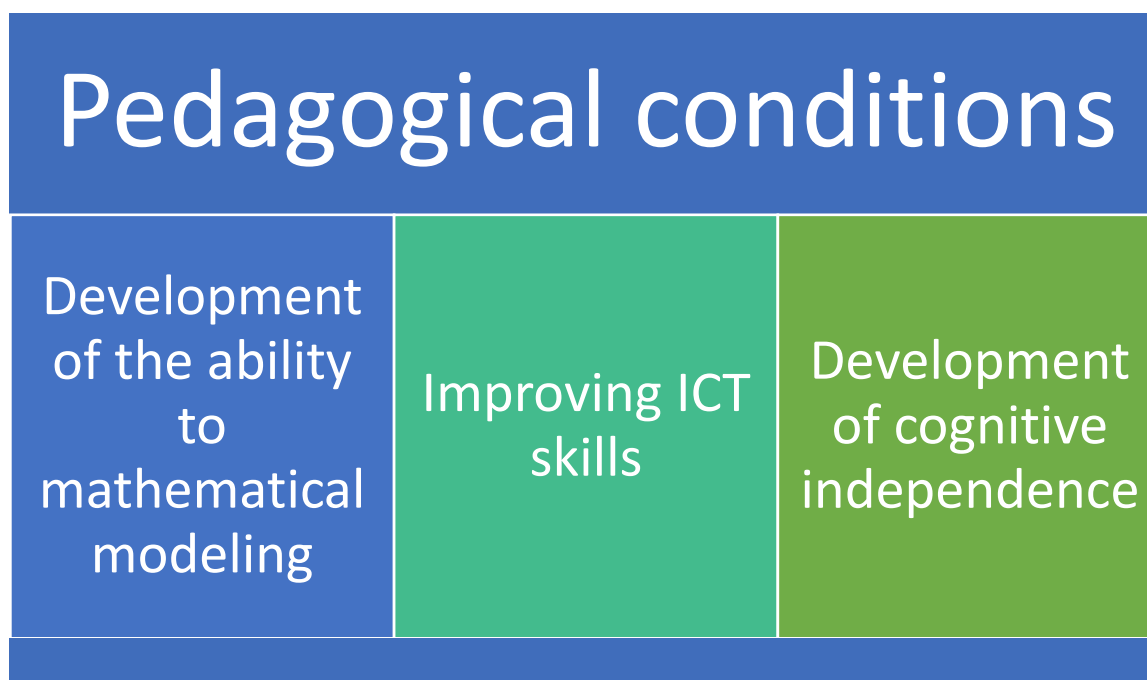


Fig. 3. Pedagogical conditions for the formation of professional competence

In particular, for the development of the future bachelor of economics ability to mathematical modeling of economic processes is effective to use professionally-oriented tasks in the teaching of mathematical disciplines. The use of Internet technologies is justified to improve the skills of students using ICT. For the formation and development of cognitive independence of future bachelors of economics, it is advisable to use project technologies.

References

1. Kremen V.G. Introductory speech by the President of the Academy of Pedagogical Sciences of Ukraine. K.: Pedagogical thought. 2009. P. 3-4.
2. Matyash O.I. Theoretical and methodical bases of formation of methodical competence of the future teacher of mathematics to training of pupils of geometry: monograph. Vinnytsia. 2013. 450 p.
3. Khiminets V. Competence approach to teacher professional development. URL: [http://zakinp-po.org.ua/2010-01-18-13-44-15 / 233-2010-08-25-07-10-49.](http://zakinp-po.org.ua/2010-01-18-13-44-15/)
4. Khutorskaya A.V. Key competencies as a component of the personality-oriented paradigm of education. Public education. 2003. № 2. P. 58-64.
5. Zeer E.F. Crises of professional development of personality. Psychological Journal. 2003. №6. P. 35-44.
6. Selevko G. Competences and their classification. Public education. 2004. № 4. P. 138-143.
7. Drach I.I. Acmeological approach to the formation of professional competence of students in higher education. URL: [http://tme.umo.edu.ua/docs/2/09 drachs. pdf.](http://tme.umo.edu.ua/docs/2/09%20drachs.pdf)
8. Voloshko L.B. Professional competence of students as a subject of psychological and pedagogical analysis. K.: NPU. M.P. Dragomanova. 2005. Vol. 48. P. 22-32.
9. Rakov S.A. Formation of mathematical competencies of a school graduate as a mission of mathematical education. Mathematics at school. 2005. №5. P. 2-7.

10. Dutka G.Ya. Fundamentalization of mathematical education of future economists: a monograph. Kyiv: UBS NBU. 2008. 478 p.
11. Nichugovskaya L.I. Simulation modeling in the system of economic training of students of agricultural universities. URL: <http://zavantag.com/docs/3207/index-49388.html>.
12. Mashbits E.I. Psychological and pedagogical problems of computerization of education. M.: Pedagogy. 1988. 192 p.
13. Gusak O.M. The use of modern information technology in the training of future economists URL: http://www.rusnauka.com/11_EISN_2011/Informatica/1_82141.doc.htm.
14. Lerner I.Ya. Didactic bases of teaching methods. M.: Pedagogy. 1981. 186 p.
15. Danilov M.A. Education of schoolchildren's independence and creative activity in the learning process. Soviet pedagogy. 1961. № 8.
16. Savchenko O.Ya. Development of cognitive activity of junior schoolchildren. K.: Rad. school, 1982. 138 p.
17. Podoliak L.G., Yurchenko V.I. Psychology of high school: textbook. manual for students. higher textbook lock Kyiv: Higher school. 2006. 320 p.
18. Shamova T.I. Activation of teaching of schoolboys M.: Pedagogy. 1982. 209 p.
19. Zeer E.F. Psychology of professions: Textbook. manual for university students. M.: Business book. 2003. 336 p.

ПАРТИСИПАТИВНЫЙ ПОДХОД К ПРОБЛЕМЕ ПОДГОТОВКИ КУРСАНТОВ ВОЕННЫХ ВУЗОВ К ПОЛИСУБЪЕКТНОМУ УПРАВЛЕНЧЕСКОМУ ВЗАИМОДЕЙСТВИЮ

Порошин В.О.

*старший штурман корабля-инструктор
учебной авиационной базы (2 разряда, г. Челябинск)
филиала Военно-учебного научного центра Военно-воздушных сил «Военно-воздушная академия» в г.
Челябинске*

A PARTICIPATIVE APPROACH TO THE PROBLEM OF PREPARING COURSES OF MILITARY UNIVERSITIES FOR POLYSUBJECT MANAGEMENT INTERACTION

Poroshin V.

*senior navigator-instructor of aviation training base (2nd category, Chelyabinsk) of a branch of Military Training Scientific Center of "Military Air Forces Military Air Academy" in Chelyabinsk
DOI: [10.24412/9215-0365-2021-62-4-42-45](https://doi.org/10.24412/9215-0365-2021-62-4-42-45)*

Аннотация

В статье рассмотрен феномен партисипативности в качестве методологического подхода при разработке системы подготовки курсантов военных вузов к полисубъектному управленческому взаимодействию. Раскрыто понятие партисипативности в условиях образовательного процесса военного вуза. Выявлена корреляция феномена партисипативности с принципом полисубъектной направленности деятельности. Раскрыта сущность партисипативного подхода при реализации системы подготовки курсантов военных вузов к полисубъектному управленческому взаимодействию.

Abstract

The article examines the phenomenon of participation as a methodological approach in the development of a system for preparing of cadets of military universities for polysubject managerial interaction. The concept of participation in the educational process of a military university is revealed. The correlation of the phenomenon of participation with the principle of polysubjective orientation of activity was revealed. The essence of the participatory approach is revealed in the implementation of the system of preparing of cadets of military universities for polysubject managerial interaction.

Ключевые слова: полисубъект, полисубъектное управленческое взаимодействие, партисипативный подход, военное профессиональное образование, подготовка курсантов, организационно-управленческая деятельность.

Keywords: polysubject, polysubject management interaction, participative approach, military professional education, preparing of cadets, organizational and managerial activities.

С развитием профессионального и личностного самоопределения курсантов в процессе образовательной деятельности формируется потребность в обоснованности и открытости применяемых к ним со стороны профессорско-преподавательского и руководящего состава военного вуза решений по организации образовательного процесса, возникает субъектная позиция по

отношению к наиболее оптимальным формам проведения занятия и методам обучения.

Удовлетворить эту потребность, по мнению исследователей феномена партисипативности (Е.Ю. Никитина, В.Г. Новиков, И.И. Санжаревский, Ф. Рост, Н.П. Стромквист и др.) [4;5;9;11;12], позволяет включение курсантов во взаимодействие