PHYSICAL & MATHEMATICAL EDUCATION

issue 2(24), part 2, 2020

Scientific journal PHYSICAL AND MATHEMATICAL EDUCATION Has been issued since 2013.

Науковий журнал ФІЗИКО-МАТЕМАТИЧНА ОСВІТА Видається з 2013.

http://fmo-journal.fizmatsspu.sumy.ua/

Riznyk V. Training future economists through it: leading principles of training. Фізико-математична освіта. 2020. Випуск 2(24). Частина 2. С. 86-90.

Riznyk V. Training future economists through it: leading principles of training. Physical and Mathematical Education. 2020. Issue 2(24). Part 2. P. 86-90.

DOI 10.31110/2413-1571-2020-024-2-036

V. Riznyk

Pereyaslav-Khmelnytskyi State Pedagogical University named after Hryhoriy Skovoroda, Ukraine riznyk84@gmail.com http://orcid.org/0000-0002-6083-2242

TRAINING FUTURE ECONOMISTS THROUGH IT: LEADING PRINCIPLES OF TRAINING

ABSTRACT	
Formulation	of the problem. Critical thinking is crucial for the professional development of economists. Hence, its development requires special attention at the stage of professional training. Determining the methodological basis of this process and clarifying the system of principles that will be appropriate for the development of critical thinking of future economists is the first stage in developing a proper pedagogical model.
	nd methods. We used the generalization and systematization of scientific publications on developing young people's critical thinking, the training of future economists, and the features of training aimed at developing the individual's critical thinking. have substantiated the didactic principles of professional economics training: general didactic (the principle of advanced development, the principle of openness of education, its continuity, the principle of innovativeness of the educational sector) and specific (innovation, active use of IT, interdisciplinarity, integration of pedagogical and digital technologies). Compliance with these principles is essential for designing a model for developing future economists' critical thinking in their professional training
Conclusions	through IT. Developing critical thinking skills is extremely important for future economists. It enables them to analyze complex economic issues, assess different perspectives and make informed decisions, identify biases and assumptions, evaluate the ethical implications of their choices, analyze complex systems, communicate effectively, and contribute to the professional development of the industry. Therefore, universities must prioritize the development of critical thinking skills in future economists.

KEYWORDS: future economists, principles of education, methodological basis, training through IT, vocational education.

Statement of the problem. Developing critical thinking skills is essential for future economists, allowing them to analyze complex economic problems, assess different perspectives, and make informed decisions. Economic policies and decisions often have far-reaching consequences for different social groups [4], and critical thinking helps economists consider the potential impact of their decisions on different groups. Economists must be able to communicate complex economic concepts clearly and concisely, considering the audience's level of understanding and perspective. Critical thinking is crucial for the professional development of economists, in particular, and the information process- and resource-based economy in general [8]. Therefore, its development requires special attention at the stage of professional training, and determining the methodological basis for the process of developing critical thinking of future economists is the first stage in the development of an appropriate pedagogical model.

Analysis of current research. When developing the methodological foundations for the development of critical thinking of future economists, it is necessary to take into account the trends in the digitalization of education [12]. Therefore, selecting appropriate teaching principles to organize an effective educational process will be essential.

The term "principle" comes from the Latin word "principium" and means a starting position, a guiding idea, a basic rule of behavior or activity [13]. Principles are the foundation of the initial principles or introductory provisions of the strategy of scientific theories, the search for scientific knowledge, and hypothetical ideas. Principles of learning reflect the objective regularities of the pedagogical process, realizing the normative function of didactics, directing the activities of teachers to achieve the pedagogical goal [11]. The opinion of scientists who interpret the principles in pedagogy as initial provisions dependent on the goals and objectives of the pedagogical process and determine the methods and forms of teaching is correct [9, p. 109]. The pedagogical principles of professional training are not a random set of formulations but a reflection of objective pedagogical regularities that function holistically in the training process, influencing its results. Characterizing the principles of education, the scientist N. Volkova notes that this is a particular system of basic didactic requirements for learning, the observance of which ensures its effectiveness [14, p. 215].



N. Kurland emphasizes that the principles are designed to determine the main directions of achieving the goal of the pedagogical process [5]. In scientists' works, teaching principles in the pedagogical process are divided into general and specific, and such a division in scientific research differs in content.

The Concept for the Development of Economic Education in Ukraine states that the development of economic education is based on the following principles: social usefulness of economic knowledge; social justice, tolerance, social harmony and cooperation between all participants in economic activity; humanism, democracy, openness and accessibility of economic education; social significance of economic thought in all spheres of professional activity; combination of basicity and specialization of various educational programs based on individualization of economic training of personnel by the needs of the labor market; continuity of economic education, its systematic and systematic nature; innovative nature of the content of economic education; meet the quality of educational services to the needs of individual, social and professional groups of the country and foreign citizens.

At the same time, the generalization of scientific works shows that with the development of the system of professional training, forms, and methods of training, the principles leading to the training of specialists in different areas and different conditions also change. Therefore, a system of principles that will be appropriate for the development of critical thinking of future economists in their professional training through IT, which is the **purpose** of our study, needs to be substantiated.

We used theoretical research **methods**: generalization and systematization of scientific publications on developing young people's critical thinking, training of future economists, and features of education aimed at developing critical thinking in individuals.

Results. A systematic analysis of approaches to the professional training of various scientists allowed us to identify general didactic principles and a system of the specific development tenets in professional training future economists' critical thinking through IT.

Among the general didactic principles [1; 10] we will highlight:

- the principle of visibility;
- the principle of strength;
- the principle of consciousness;
- the principle of scientificity;
- the principle of activity;
- the principle of individualization;
- the principle of accessibility;
- the principle of systematization and consistency;
- the principle of problem-solving.
- Their use does not require justification.

Along with the generally accepted didactic principles of education, domestic researchers put forward several specific principles for the training of future economists. Thus, L. Nichugovska [7] examines the mathematical training of students of economic profile and focuses on the principles of the adaptive concept of its implementation: quality of education, fundamentality, humanism, continuity, and anticipatory nature of education. Scientists advise the principles of improving the content of computer training of future economists, namely: the principles of the predictive nature of computer training, principles of research of information operations methods sufficient for self-study in the field of ICT, principles of modular learning, traditional principles of computer learning; principles that guide the practice of IT teaching. [3; 6].

The pedagogical process of developing critical thinking of future specialists in economics is also transformed in specific principles [2], effectively designed to achieve better learning outcomes: the principles of economists' professional training (the principle of advanced development, the principle of openness of education, its continuity, the principle of innovativeness of the educational sector) and specific principles (active use of IT, interdisciplinarity, integration of pedagogical and digital technologies). *Principles of economists' professional training*

The principle of advanced development. This principle assumes that the level and structure of students' knowledge will improve if they are encouraged to be proactive, promoting their desire to learn and develop the acquired knowledge to acquire and create a new quality of knowledge. Therefore, the information (knowledge) provided by the teacher, i.e., from the outside, through training (acquisition of practical skills and abilities) and creativity (active experience), passes into the process of professional training, where it is integrated into the inner world and consciousness of future specialists. That leads to integrating knowledge, practical skills, abilities, and experience. This principle presupposes an empirical understanding of reality, realized by students who ultimately own the results of their activities: acquired knowledge, skills, means of activity, and educational products obtained using student-centered types of education. The implementation of this principle in practice includes an emphasis on the student's independent work and the provision of creative freedom, allowing future professionals to make breakthroughs beyond their capabilities, allowing students to rethink and transform the content, expand their consciousness, intensify activity, communication, and behavior in general, determine the attitude to the world around them, promoting the integration of knowledge, practical skills, abilities, and work experience. Since students can set challenging but achievable goals (with the help of teachers and tutors) and feel their competence, additional motivation encourages them to continue their work.

The principle of openness of education, its continuity. The modern scientific revolution has vectors of multivariant risks (encouraging the danger of destruction and destruction of systems), which are unilaterally caused by the aggravation of many problems. This principle means that in a market economy, due to high mobility, each person needs to learn again and again throughout his life, and therefore, the skills and habits of educational activity are continuously independent; his self-organization must be formed in the process of learning process and provision of lifelong learning.

The implementation of this principle in practice involves the transformation of the learning process from the position of "teacher before the student" to "the student who is next to the teacher" (the invisible teacher directs the independent

PHYSICAL & MATHEMATICAL EDUCATION

transformation). That leads to students organizing their educational activities. In this case, the problems of discipline and motivation will disappear as students realize that knowledge, abilities, skills, and experience are their most important capital in the universities. Modern socio-economic conditions determine the conditions for training a qualified specialist who wants to work in the chosen specialty, which in the information society will be problematic if the student does not have the opportunity to work in this specialty during his studies to take an active part in the creation of material value, using the knowledge base, to be involved in analytical activities, to review, analyze and discuss the latest achievements in selected and related fields. The implementation of this principle in practice is achieved through the introduction of production practices, participation in training, and evaluation of training outcomes of honest employees and members of the public, as well as analysis of the country's specialized economic and social situation and internal and external labor markets.

The principle of innovativeness of the educational sector. The education system comprises many elements, each with fixed and variable parts. The stable part provides the necessary continuity, preserves traditions, and ensures education's "healthy" conservatism as a social institution. The variable part is ready for innovation and prepared for the necessary modernization. Freedom of choice of educational products, providing individual access to the development of educational programs by choosing from a variety of disciplines; a form of organization of training, which ensures the right of students to be physically present in the classroom and to use modern educational technologies. The implementation of this principle is to train future economists according to the personal trajectory reflected in the student's curriculum, which will allow taking into account the natural inclinations of the student during the training of the student, the competence of the economist, and to offer future specialists the most promising areas of activity in the field of economics and finance. Implementation of this principle in practice is the involvement of the best domestic and foreign experience in the training of economists; participation of leading experts in the field of economics and finance in the professional training and assessment of economists' qualifications; practical application of innovations. It is necessary to respond flexibly to changes in political, economic, and social situations within the country and at the international level, helping to bring vocational training results closer to the requirements of the labor market and ensuring the maximum competitiveness of good students.

Specific Principles for the Development of Critical Thinking of Future Economists through IT

The principle of active use of IT. The development of modern information and educational space requires young people to be proficient in modern ICT and the ability to use it in education and everyday life. Therefore, for the countries of the European Union and other economically developed countries of the world, the use of computer technologies, the development of forms of distance education, and the development of open educational institutions are the most critical tasks within the framework of existing state programs. Ukraine also considers it promising. The course aims to improve the quality of education and, above all, the practical implementation of information and communication technologies in education. The experience of foreign colleagues can become a source of information and an interesting strategic and essential priority for educational practice and information exchange, as well as the possibility of integrating Ukrainian educators into the technologies and educational processes of the modern world.

Two characteristic features of the new type of economy are informationality and globality. The essence of the first is that the productivity and competitiveness of factors or agents of the economy (firm, region, etc.) depend on their ability to generate, process, and effectively use knowledge-based information. The second is that the main types of economic activity and their components (capital, labor, raw materials, management, information, technology, markets) are organized globally, directly or using an extensive network that connects economic agents. Intellectualization of business is becoming an integral trend in forming the business environment at the national, regional, and local levels. Global information changes outline new requirements and guidelines for developing national and regional economies. In turn, this process will be determined by the need for large-scale informatization of economic processes and an increase in the share of the IT sector in the structure of the economy.

Transformational changes in the economy will arise as a result of the widespread use of information technologies, information systems, and the Internet in the development of all types of economic activity, the growing importance of information and knowledge in the activation of socio-economic development of cities and regions, in business and, as a result, significant changes in the forms, methods, and tools of management. Thus, transformational changes in the economy are dynamic, constantly being influenced by the latest factors, among which, in recent years, a special place has been occupied by the development of the IT sector in Ukraine and the large-scale introduction of information technologies in all spheres of human life.

The principle of interdisciplinarity. The primary task of professional training of future economists, in addition to the formation of knowledge, skills, and professional skills, is the acquisition by students of systematic knowledge about the relationship of man with nature, culture, society, and the state. By deepening, developing, and clarifying the complex natural and humanitarian image of the world, the specialized knowledge component common to all specialties of the "Economics and Entrepreneurship" training direction will contribute to Mastering students of social criteria for assessing reality in a variety of its various aspects, such as cultural phenomena, as well as ways of collecting and interpreting scientific information, how to process and store it, will teach the ability to see the place of information and knowledge in the structure of an organization, agency or company, where you will have to work and build your career.

This principle also means the interdisciplinary interaction of scientific research and academic subjects, the content, structural and functional unity of the educational process, which will allow representatives of economic specialties to acquire both general methodological ideas and special knowledge, that is, it will provide within the framework of professional training the possibility of purposeful formation of ideas about advanced developments from scientific and pedagogical workers who simultaneously carry out scientific research in their fields. Therefore, it is essential to attract experts who can integrate ideas from many scientific fields, work with interdisciplinary categories, and comprehensively perceive the innovative process of

development of the economy and society as a whole, which is necessary for the development of fundamentally new approaches in the field of economics and finance.

This principle also means the ability of the future economist to move from a well-known educational environment to a new professional reality, where new relationships between known phenomena and quantities arise, where new knowledge is deepened and developed that helps to achieve a particular goal to meet specific individual and social needs. The practical implementation of this principle is achieved through the training of future specialists not only in specific special knowledge and skills of a specialist in the field of economics and finance but also in special skills aimed at the ability to "use this knowledge in practice, create new competitive products, that is, form an innovative approach to their development. The fulfillment of professional tasks, of course, requires changes in the methodology of training, involves the strengthening of creative tasks in the process of professional training, and occurs due to the interdisciplinary, integrated interaction of theoretical and industrial knowledge, training, and cultural and social integration.

The principle of integrating pedagogical and digital technologies means the maximum preservation of those organizational structures, selected forms, and methods and means of teaching that have proven successful for the training of future economists. The principle is aimed at developing the content of education based on the integration of new information technologies, introduction into the educational process, along with traditional problem-based and game methods of learning, methods based on the use of new information technologies, such as computer modeling, local and network database and knowledge technologies; development of the internal personal readiness of the future economist for the formation of information and digital culture through the identification and use of incentives for the activation of cognitive activity with the use of new digital technologies, which are selected depending on the type of personality; development of a particular style of pedagogical activity of teachers, focused on the formation of information and digital culture. The practical implementation of the principle is obvious. It consists of the introduction of balanced innovations in the form of innovative teaching methods and upbringing and multimedia technologies to the integrative professional training of future economists.

Conclusions. Developing critical thinking skills is extremely important for future economists. It enables them to analyze complex economic issues, assess different perspectives and make informed decisions, identify biases and assumptions, evaluate the ethical implications of their choices, analyze complex systems, communicate effectively, and contribute to the professional development of the industry. Therefore, educators must prioritize the development of critical thinking skills in future economists.

We have substantiated the didactic principles of professional training of economists: general didactic (the principle of advanced development, the principle of openness of education, its continuity, the principle of innovativeness of the educational sector) and specific (innovation, active use of IT, interdisciplinarity, integration of pedagogical and digital technologies). Compliance with these principles is essential for designing a development model of critical thinking for future economists in their professional training through IT.

References

- 1. Basic Didactic Principles. URL: http://pidruchniki.com/11570718/pedagogika/osnovni_didaktichni_printsipi.
- 2. Bogonis O. M. Pedagogical conditions for the formation of economic competence of future junior specialists of hotel and restaurant service in college. A young scientist. 2017. № 6 (46). P. 194–201.
- Goncharova O. M. Theoretical and methodological foundations of the personality-oriented system of formation of informatics competences of students of economic specialties : Author's dissertation for the degree of Doctor of Pedagogical Sciences: spec. 13.00.02 "Theory and methods of teaching (informatics). Kyiv, 2007. 40 p.
- Kudrina O.Y., Semenikhina O.V. Theoretical and methodological principles of sustainable economic development. Determinants of Sustainable Economic Development : Monograph / Under General. Ed. Doctor of Economics, Prof. Khrapkina V. V., Doctor of Law, Prof. Ustimenko V.A. K.: Interservice, 2019. P.9-62.
- 5. Kurlyand Z. N. Formation and development of the teacher's professional stability: author's diss. ... Doctor of Pedagogy. Sciences: 13.00.01. Odessa, 1992. 39 p.
- Levochko, M. T. Continuity in professional training of future specialists in the economic sector in the "college-university" system. ... Doc. Prof. ped. Sciences: 13.00.04. Kyiv, 2010. 717 p.
- Nichugovska L.I. Scientific and Methodological Foundations of Mathematical Education of Students of Economic Specialties of Higher Educational Institutions: Author's Diss. ... D. Ped. Sci.: spec. 13.00.04 "Theory and Methods of Professional Education". K., 2005. 36 p.
- Omelyanenko, V., Kudrina, O., Semenikhina, O., Zihunov, V., Danilova, O. & Liskovetska, T. Conceptual aspects of modern innovation policy. European Journal of Sustainable Development. 2020. Volume 9 (2). P. 238-249. DOI:10.14207/ejsd.2020.v9n2p238.
- 9. Pedagogy of Higher School / Z. N. Kurlyand et al.; ed. by Z. N. Kurlyand. Kyiv: Znannia, 2007. 495 p.
- 10. Pedagogy; Principles of Higher Education. URL: http://www.info-library.com.ua/books-text-4065.html.
- Professional Pedagogy: Textbook for Students Studying in Pedagogical Specialties and Directions [Edited by S. Y. Batyshev, A. M. Novikov]. 3rd edition, revised. Moscow: EGVES Publ., 2009. 457 p.
- Semenikhina O., Yurchenko A., Sbruieva A., Kuzminskyi A., Kuchai O., Bida O. The Open Digital Educational Resources In IT-Technologies: Quantity Analysis. Information technologies and learning tools, 2020. V. 75 Issue 1. P.331-348. https://doi.org/10.33407/itlt.v75i1.3114.
- 13. Vishnyakova S. M. Professional Education: Dictionary. Key Concepts, Terms, Actual Vocabulary. M.: NMC SPO, 1999. 538 p.
- 14. Volkova N. P. Pedagogy [for students of higher education]. Kyiv: Akademizdat, 2007. 616 p.

ПІДГОТОВКА МАЙБУТНІХ ЕКОНОМІСТІВ ЗАСОБАМИ ІТ: ПРОВІДНІ ПРИНЦИПИ НАВЧАННЯ В'ячеслав РІЗНИК

ДВНЗ «Переяслав-Хмельницький державний педагогічний університет імені Григорія Сковороди», Україна Анотація.

- Постановка проблеми. Критичне мислення має вирішальне значення для професійного розвитку економістів, тому його розвиток потребує окремої уваги ще на етапі професійної підготовки, а визначення методологічного підґрунтя цього процесу та уточнення системи принципів, які будуть доречними для розвитку критичного мислення майбутніх економістів є першим етапом розроблення відповідної педагогічної моделі.
- Матеріали і методи. Ми використовували узагальнення і систематизацію наукових публікацій щодо розвитку критичного мислення молоді, підготовки майбутніх економістів та особливостей навчання, спрямованого на розвиток критичного мислення особистості.
- Результати. Нами обґрунтовані дидактичні принципи, професійного навчання економістів: загальні дидактичні (принцип випереджувального розвитку, принцип відкритості освіти, її безперервності, принцип інноваційності освітньої галузі) та специфічні (інноваційності, активного використання IT, міждисциплінарності, інтеграції педагогічних та цифрових технологій). Дотримання цих принципів важливе для проєктування моделі розвитку критичного мислення майбутніх економістів у процесі їх професійної підготовки засобами IT.
- Висновки. Розвиток навичок критичного мислення є надзвичайно важливим для майбутніх економістів. Воно дозволяє їм аналізувати складні економічні проблеми, оцінювати різні перспективи та приймати обґрунтовані рішення, виявляти упередження та припущення, оцінювати етичні наслідки своїх рішень, аналізувати складні системи, ефективно спілкуватися та робити внесок у професійний розвиток галузі. Тому важливо, щоб освітяни надавали пріоритет розвитку навичок критичного мислення у майбутніх економістів.

Ключові слова: майбутні економісти, принципи навчання, методологічна основа, підготовка засобами IT, професійна освіта.