The Role of Fundamentalization of Education in Improving the Future Specialists Professional Training with Usage of Multimedia Technologies

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Summary

The article considers the fundamentalization of education in improving the future specialists professional training with usage of multimedia technologies by various scientists. Various points of view and approaches to defining the concepts of fundamentalization of education and multimedia technologies are identified. The concept of fundamentalization of professional training of a future specialist is based on the goals and functions of fundamentalization and - on the ways and means of achieving it, etc. Most authors agree only in their views that the fundamentalization of education is aimed at improving the quality of education and the education of the individual. Others involve the formation of a culture and worldview, increasing the creative and intellectual potential, forming the professional competence of a specialist and the potential for further education, and so on. The term multimedia refers to interactive systems that provide processing of moving and still video images, animated graphics, high-quality audio and speech. It is found out that professional training of a specialist by means of multimedia technologies includes not only the activities of the teacher and student, which form the learning process, but also the independent activity of the subject, self-development, assimilation of experience by the subject through analysis, comprehension and transformation of the field of activity in which he is included. It is revealed through the implementation of which approaches to the fundamentalization of higher professional education, it becomes possible to fully present theoretical training courses and effectively pass practical training by students, which contributes to improving the quality of training of future specialists in higher education institutions. Theoretical analysis of scientific views indicates a fairly serious attention of scientists to the problem of professional readiness of specialists and the possibility of higher educational institutions in preparing

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for it. At the same time, professional readiness is considered from different positions: as an active state of a person, which manifests itself in activity; as a result of activity; as goals of activity; as a quality that characterizes the attitude to solving professional problems and social situations; as a prerequisite for purposeful activity; as a form of activity of the subject; as an integral formation of personality; as a component of socio-professional culture; as a complex professionally significant neoplasm of the individual.

Keywords:

fundamentalization, multimedia technologies, higher professional education, professional readiness, future specialists, quality of training.

1. Introduction

Modern education is the main social and value resource of the state, so the training of future specialists in the country's universities focuses on the trends of professionalization, raising the internal and personal capabilities of students, developing normalized innovative thinking, freedom of action, independence in making informed decisions, striving for continuous self-education, etc. [16].

As a result of the review of works on the topic of fundamentalization of education and professional training of specialists by means of multimedia technologies, various points of view and approaches are identified, that is, we mean "differences in the ways of ontological vision and representation of the world, differences in the means and

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methods of our mental activity, often framed as differences in the "logic of our thinking". In the author's works, imaginary or implicit, there are different approaches to the fundamentalization of Education, which cannot be brought to a common basis. Even less studied is the concept of fundamentalization of professional training of a future specialist by means of multimedia technologies. Some of them are based on the goals and functions of fundamentalization, others - on the ways and means of achieving it, and so on. Most authors agree only in their views that the fundamentalization of education is aimed at improving the quality of education by means of multimedia technologies and personal education. Others involve the formation of culture and worldview, increasing creative and intellectual potential, forming the professional competence of a specialist and the potential for further education by means of multimedia technologies, and so on.

The free encyclopedia "Wikipedia" describes the term multimedia as a combination of various forms of presenting information on a single medium, for example, text, sound and graphic, or more recently – animation and video [12]. According to the" Universal dictionary-encyclopedia", multimedia is the integration of many different media (television, audio and video equipment, computer science) on a certain common base, which can serve as a computer or set – top box to a TV [13].

Multimedia is a full-fledged combination of computer and other information technologies: video, audio, photo, cinema, telecommunications (telephone, television, radio). A. Laktionov under the term multimedia understands interactive systems that provide processing of moving and still video images, animated graphics, high-quality sound and speech [10].

Based on the analysis of psychological and pedagogical sources, we state that researchers interpret multimedia technologies (from the English term "multimedia" – multicomponent environment) as a combination of several means of presenting information in one computer system: text, sound, graphics, animation, video, illustrations (images), spatial modeling. Other forms of multimedia, such as the presentation of information in the form of slides and magnetic recording, interactive video and video products, have been used in pedagogical practice for quite a long time, but the term "Multimedia" has become popular relatively recently, due to the emergence of powerful inexpensive computers equipped with monitors with large operational capabilities [2].

The term multimedia indicates a certain versatility of communication resources. Scientific sources propose a number of definitions that interpret multimedia as technical resources primarily for digital processing and presentation of information in an integrated form: text, graphic or audio. Now it is necessary to characterize multimedia, taking into account the prospects of the communication process. This concept is understood not only as communication resources, but as all information media that can function in global computer systems, but also as tools for human cognitive development.

Researchers justify two approaches to understanding multimedia. According to the first one, multimedia is a teacher's toolkit that operates with various devices to transmit learning content. According to this concept, multimedia is considered a carrier of information that transmits content. The amount of multimedia is constantly growing, which has a positive effect on deeper assimilation of the content of training. Representatives of the second approach see multimedia as a feature that reaches the user, highlighting the multimedia function, that is, the fact that it is an instrument of human cognitive development. This concept outlines a strategy for using multimedia to strengthen individual means of processing information in practice [14].

One of the main areas of application of multimedia systems is education. As G. Kedrovich notes, "the future of education is multimedia learning, which has:

- consolidate the knowledge gained during the lecture;

- develop the student's independent thinking and cognitive interests;

- deepen your learning skills;

- involve the student in the independent use of modern sources of knowledge [5].

Having considered the concept of "multimedia", let us turn to the concept of "multimedia tools". It is necessary to distinguish between the concepts of "multimedia tools" and "multimedia learning tools".

A. Pushkar understands multimedia tools as a set of hardware and software tools that allow a person to communicate with a computer using a variety of familiar environments: sound, video, graphics, texts, animation, etc. [3].

O. Kuchai interprets the concept of "multimedia" as a new information technology that allows you to clearly manage a large amount of diverse information presented on one electronic device, makes possible the integrity of complex perception and is aimed at cognitive development of a person [8].

Purpose. To find out the role of fundamentalization of education in improving the professional training of future specialists by means of multimedia technologies.

2. Analysis of recent research and publications

An important place in the study of the problem of fundamentalization of education in improving the professional training of future specialists by means of multimedia technologies is occupied by the works of scientists: M. Kovtonyuk substantiates the theoretical and methodological foundations of fundamentalization of general professional training of a future mathematics teacher [7]; L. Romanovskaya considers the system of training specialists abroad on the example of developed countries [17]; O. Karpenko reveals theoretical and methodological approaches to professional readiness of specialists. It is noted that professional training of a specialist by means of multimedia technologies includes not only the activities of the teacher and student, which form the learning process, but also the independent activity of the subject, self-development, assimilation of experience by the comprehension subject through analysis, and transformation of the field of activity in which he is included [4]; L. Rebukha analyzes the role of fundamentalization of higher professional education of future social workers: an anthropological and humanistic approach. The author claims that it is through the implementation of these approaches to the fundamentalization of higher professional education that a holistic presentation of theoretical training courses by means of multimedia technologies and effective practical training by students becomes possible, which contributes to improving the quality of training of future specialists in higher education institutions [15].

Many of scientific authors Kotiash, I., Shevchuk, I., Borysonok, M., Matviienko, I., Popov, M., Terekhov, V., Kuchai O., Shunkov, V., Shevtsova, O., Koval, V., Grygorenko, T., Yefymenko, L., Smolianko, Y., Skyba, K., Demchenko, A., Savchenko, N, Necheporuk, Y., & Rezvan, O. and others discoveries that the practice of multimedia technologies in the educational process of higher education institutions lets to move from a passive to an active way of realizing educational activities, in which the student becomes the main participant in the learning process. Also regards the educational objects of multimedia learning technologies and study the fragment of multimedia education in the progress of the information culture. [6; 9; 18].

3. Research Methods

The achievement of the outlined goal is subordinated to the application of a set of research methods: theoretical: analysis of psychological and pedagogical, reference and methodological literature to study the conceptual provisions, basic concepts and categories of research, which makes it possible to substantiate the fundamental provisions of the study; the study of actual sites for the theoretical justification of the outlined problem, finding out the main directions of fundamentalization of education in improving the professional training of future specialists by means of multimedia technologies; methods of abstracting, concretizing and generalizing theoretical provisions in the works of domestic and foreign scientists and practitioners in order to clarify the role of fundamentalization of education in improving the professional training of future specialists by means of multimedia technologies.

4. Results and discussion

In recent years, many scientists consider as the main leading elements of the content of education not specific knowledge and skills, but certain qualities of the individual that allow them to independently master new content and technologies of activity:

- fundamental general cultural knowledge that provides a broad worldview and vigorous activity in any field (K. K. Kolin);

ability to use their own knowledge to improve their professional activities (V. Gorshenin);

 development of general abilities, inclinations, interests that contribute to human adaptation in a changing world (B. BIM-bad);

 development of creative abilities, self-education skills, ability to find ways to solve complex problems (L. Zanina);

- development of the student's personality (A. Novikov). It is characteristic that now the requests of modern employers for training professionals are more moving to the plane of "opportunities – abilities – readiness".

The analysis of pedagogical literature shows that there are different approaches to the classification of professional competencies of a specialist; in particular, they are divided into general (key) and professional. General competencies are divided, in turn, into general scientific, socio-personal and instrumental. Professional competencies are usually divided into special, methodological, psychological, and pedagogical. O. Lyubimova identifies a subclass of basic competencies from the set of key and professional competencies that are formed in the process of studying "basic" disciplines from the blocks of humanitarian and socio-economic, mathematical and natural science, professional and practical training. In her opinion, from the group of basic competencies, we can distinguish a group of fundamental competencies from each field of knowledge. These can be competencies that are formed during the study of fundamental sciences (Physics, Mathematics, Chemistry, Biology). However, the scientist notes, this is a traditional approach to the problem of fundamentalization, and fundamental competencies should be determined taking into account the fundamentalization paradigm, which includes three aspects:

1) training in "metalanguage" (mathematics, logic, cybernetics, philosophy, qualitology);

2) formation of the cultural base as the basis of motivation to learn;

3) training of specialists not in "narrow" specialties, but in the following areas. This approach to the content of fundamental competencies requires a revision of technologies for implementing the principle of fundamentality in education and methods for diagnosing this type of knowledge [7].

S. Kazantsev developed a didactic system for fundamentalizing learning. The scientist considers the fundamentalization of education within the framework of his concept as a didactic principle; as a multidimensional process of improving the didactic system, all components of which are transformed through a system of rules of the principle of fundamentality; as a system of conditions for designing a fundamental educational space.

E. Luzik proposed the concept of a problem-complex definition of the quality of fundamental training, the main idea of which is that the structure and content of training control (academic discipline, section, topic) are derived from the structure and content of the training itself (the place of training and discipline in the curriculum, section and topic – in the structure of the discipline).

M. Chitalin defines the fundamentalization of professional education as a new independent system built on the integration of fundamental subject and professional concepts, identifies its stages: 1) general training aimed at the formation of a worldview, general culture, creative abilities; 2) special training – aimed at the formation of a culture of professional activity; 3) partial (single) training – aimed at the formation of professional culture and the growth of professional skills. The essence of the methodological approach of multi-level fundamentalization of the content of vocational education is the relationship between fundamental, professional in the selection, and structuring of the content of Vocational Education.

V. Lugovoy calls information, which is an interdisciplinary concept-category, a fundamental concept for pedagogy (as a science and practice) and education. The basis of this concept is clarified in a series of comparisons with other similar categories (understood at the highest scientific and philosophical level), such as matter and energy. The first, as you know, is the basis of being, the other acts as a measure of the movement and interaction of matter. In this categorical series, information is a measure of the spatial, temporal, spatial-temporal ordering of matter, characterizes the degree of transition from an unorganized-chaotic to an organized-ordered stage in the process of its spontaneous self-organization or special organization [7].

The educational system is designed to prepare future specialists in a timely manner for the conditions of life and professional activity in the information world. The main task of education at the present stage is the humanization of the learning process, the formation of the student's personality, and the formation of a high Information Culture. Modernity requires from the teacher knowledge and skills from the use of modern pedagogical technologies, possession of highly ideological methods and techniques of modern science.

The introduction of multimedia in education takes the educational process to a qualitatively new level using

various methods of presenting information in multimedia resources. Training of specialists who are proficient in modern multimedia technologies is a necessary condition for improving the level of knowledge of society as a whole, since it is the teacher who lays the foundations of human knowledge.

Multimedia tools open up access for students to nontraditional sources of information, provide completely new opportunities for realizing their creative potential, and help them implement fundamentally new forms and methods of teaching.

Therefore, future specialists will constantly use multimedia technologies in their professional activities. It is important to teach students how to apply them correctly, introduce them to the maximum benefits of these learning tools and valuable information resources. Teachers realize that multimedia technologies are not just a toy, but also above all a powerful and effective learning tool that allows them to introduce more diversified methods of attracting students to education [8].

Integration into the European educational space requires the introduction of the latest methods based on the use of ICT into the educational process of Higher Education. One of the main tasks of the education system today is to provide everyone with free and open access to knowledge, taking into account their needs, abilities and interests.

To improve the learning process, it is necessary to use such powerful technologies as "cloud technologies", which, supporting traditional forms of Education, constitute a new stage in the development of Education, serve as a costeffective, efficient and flexible way to meet the needs of students to master new knowledge. With the help of existing technologies and tools, you can create a local "computing cloud" for an educational institution in order to use its resources in accordance with modern educational requirements.

Cloud technologies make significant changes in the process of studying any discipline, providing optimization of the collection, storage, search, processing and presentation of information, while not requiring changes to the curricula of educational institutions [1].

Therefore, the use of cloud technologies in learning means an evolutionary step in giving the learning process more flexibility, openness and mobility. Cloud technologies store all user data and perform basic computing work that requires information, programs, and configuration. An Internet connection is sufficient for their use. Cloud technologies have a number of advantages: do not need powerful computers, which reduces the price of a PC, increase the power of a PC due to servers, reduce the cost of purchasing software (programs in the cloud), the inexpediency of constant updates, since everything is located in the cloud, no piracy, unlimited amount of stored data, availability from different devices and from different places, stability of data loss, performing many types of educational work, monitoring and evaluation online; saving money on paying technical specialists; saving disk space; openness of the educational environment [8].

Studying the world experience of professional education by means of multimedia technologies is one of the most important tools for developing and implementing new ideas, which provides opportunities to better understand the specifics of the chosen profession, prevent mistakes in training specialists, introduce basic concepts that have passed the test of time: a combination of theory and practice, close interdisciplinary integration.

Studying and comparing the training of specialists by means of multimedia technologies in developed countries of the world, L. Romanovskaya concludes that:

- the introduction of a national governing and regulating body – analogous to the Central Council for training and preparation specialists in the UK – can give an impetus to the development of the entire system of training specialists;

 educational institutions in Ukraine should pay attention to the possibility of introducing new individual and group forms of work by means of multimedia technologies, including distance learning;

 with serious fundamental theoretical training of educational institutions in Ukraine, the volume of practical activities of students significantly lags behind international standards;

 a serious study of the role of teachers-mentors of practical training of future specialists can increase both the success of mastering practical skills of activities in general, and the degree of satisfaction with students' practice;

- the source of the theoretical and methodological base for training specialists in Ukraine can be the experience of European countries, in particular Germany, France, in training specialists to work with children and youth.

The scientist considers it necessary to note that, despite the much greater foreign experience of training specialists, its use should take place through a deep understanding and adaptation to domestic cultural and historical traditions and socio-economic and political conditions [17].

At each stage of training a specialist, a certain type of activity dominates, which it is advisable to activate by means of multimedia technologies. Thus, motivational and value readiness, the main element of which is the orientation of the individual, which determines the development of competence, is formed as a result of purposeful training, but the success of training depends on the motivational sphere of the individual, which needs to be influenced, and on the desire of the subject to change it. By the way, just this component contributes to strengthening the social and professional attitude, developing a certain position that reflects the ideological criterion.

The content component of competence, which is the basis for content readiness, is formed because of training by means of multimedia technologies and is, in fact, an activity for the assimilation and transfer of a system of knowledge, which is reflected in the content criteria of professional readiness.

The development of the operational component is based on the formed motivation and implies the dominance of activity, which is an indicator of creative self-realization. All this is generally reflected in the operational criterion, the presence of which indicates the activity-behavioral aspect of readiness of a graduate of a higher education institution.

Therefore, professional training of a specialist by means of multimedia technologies includes not only the activities of the teacher and student, which form the learning process, but also the independent activity of the subject, selfdevelopment, assimilation of experience by the subject through analysis, comprehension and transformation of the field of activity in which he is included [4].

Fundamentalization serves as a tool for significantly improving the quality of education and erudition of future specialists in higher education institutions. However, it is wrong to reduce the fundamentalization of education to the teaching of fundamental sciences, since fundamental education is not only knowledge of fundamental sciences, it is a high level of intellectual and spiritual development of the individual, forming a kind of space that permeates and binds this knowledge. That is why the coverage of anthropological and humanistic approaches in the context of improving the fundamentalization of higher professional education of future specialists is an urgent need of the time.

The fundamental knowledge of future specialists is formed during continuous, parity interaction with the teacher in the classroom and extra-curricular viticulture space, and provides for them:

 interdisciplinary, which is achieved through the synthesis of knowledge of specially organized integration training courses;

 – universality as a focus on the perception of the world and oneself as an "indivisible whole" in this world, which is formed during training by periodically updating personal "pictures of the world" as the final moments of educational cycles;

- problematic, characterized by a set of knowledge caused by the need to solve professional problems

However, now the fundamentalization of education cannot do without its humanization. A specialist whose activity is aimed at harmonizing personal and social relations should have a humanistic worldview.

The introduction of a humanistic approach to the fundamental training of future specialists is of great methodological importance, since for people working in the "person-to-person" system, masculinity is determined not only by basic knowledge and skills, but also by the value orientations of a young specialist, the motives of his activities, the style of relationships with the people he works with, his overall culture, and his ability to develop his creative potential. It is the humanistic approach to the fundamentalization of professional training of future specialists that organically combines the functions of education, upbringing and selfdevelopment of the student's personality, contributes to improving the quality of their training in a higher education institution, and develops responsibility for their attitude to humanity and the planet for the results of their activities.

The humanistic approach to the fundamentalization of professional education is mainly associated with the development of active and creative capabilities of the student, with his socio-volitional and moral potential, stimulating the desire in the future to realize himself in the public interest.

Therefore, the teacher in the classroom should work in such a way, using multimedia technologies, so that each student gradually masters a new level of culture, changes for the better their attitude to the world, other people and themselves, and is personally responsible for their actions and their consequences. Modern society needs specialists trained both "in breadth" and "in depth". In other words, society seeks to get not just a qualified specialist, but also a competent specialist in its field, where competence, along with other characteristics, is one of the significant nontraditional values of modern education.

Fundamentalization of professional training of future specialists is focused on bringing fundamental knowledge to priority positions, which are the basis for creating and accumulating holistic, generalized knowledge for the purposeful formation of creative thinking and professional competence. At the same time, an important role is assigned to anthropological and humanistic approaches in the fundamentalization of higher professional education of future specialists. They contribute to the formation of the personality as an active subject of creative work, knowledge and communication, serve as a factor of its harmonious development, the growth of essential forces and abilities, are "issued" by us as a socio-pedagogical phenomenon, which acts as a pedagogical problem, phenomenon, process, principle, practice and as a direction of research of pedagogical reality. It is through the implementation of these approaches to the fundamentalization of higher professional education that a holistic presentation of theoretical training courses by means of multimedia technologies and effective practical training by students becomes possible, which contributes to improving the quality of training of future specialists in higher education institutions [15].

Each profession is characterized by common with other professions and specific values inherent only to it. Features of professional values are determined by the role and status of the profession in the life of society and a particular person.

Training, like any activity, has a specific purpose. Traditionally, the purpose of training specialists is determined by qualification characteristics, in which the requirements for professional qualities are quite generalized. The goals formulated in this way reflect the invariant aspects of training: knowledge, skills, development of certain abilities and qualities.

Professional training of specialists by means of multimedia technologies should be focused on the model of the future specialist, reflecting the structure of his activities, and the training process itself should reflect the specifics of future professional activities.

Theoretical analysis of scientific views indicates a serious attention of scientists to the problem of professional readiness of specialists and the ability of higher education institutions to prepare for it. At the same time, professional readiness is considered from different positions:

- as an active state of a person, which manifests itself in activity;

– as a result of the activity;

- as the goals of the activity;

 as a quality that characterizes the attitude to solving professional problems and social situations;

- as a prerequisite for purposeful activity;

- as a form of activity of the subject;

– as a holistic personality formation;

- as a component of social and professional culture;

- as a complex professionally significant neoplasm of the individual [4].

Training of specialists for professional activity in any field is carried out "on the basis of a comprehensive combination of understanding the essence of the profession itself, methodological justification of the philosophical foundations of its theory, creative search for the most effective technologies for performing, consideration of a certain work as a professional activity" [11].

Currently, the training of future specialists at Ukrainian universities is carried out in accordance with the standard of higher education of Ukraine of the first (Bachelor's) and second (Master's) degrees of the specialty. It is considered by theorists and practitioners on the plane of analysis of certain features of professional training of future specialists specifically for Ukrainian society, the definition of further prospects for the formation of a system of training and advanced training of specialists by means of multimedia technologies, an effective diagnostic assessment of professional abilities of applicants during professional selection, the definition of special professional functions and personally performed socially important roles, etc. University education according to standards is aimed at the formation of each student's professionalism, moral and value portrait of the personality of the future specialist, and is also aimed at the formation of a personal professionally significant model of a specialist by means of multimedia technologies, including such important components: professional responsibility and communicative competence, fundamentalization and psychologization of knowledge; humanity, creativity, tolerance, etc. [16].

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Conclusions

The article considers the fundamentalization of education in improving the professional training of future specialists by means of multimedia technologies by various scientists. Various points of view and approaches to defining the concepts of fundamentalization of education and multimedia technologies are identified. The concept of fundamentalization of professional training of a future specialist is based on the goals and functions of fundamentalization and - on the ways and means of achieving it, etc. Fundamentalization of education is aimed at improving the quality of education and erudition of the individual. Others involve the formation of a culture and worldview, increasing the creative and intellectual potential, forming the professional competence of a specialist and the potential for further education, and so on. The term multimedia refers to interactive systems that provide processing of moving and still video images, animated graphics, high-quality audio and speech.

It is found out that professional training of a specialist by means of multimedia technologies includes not only the activities of the teacher and student, which form the learning process, but also the independent activity of the subject, self-development, and assimilation of experience by the subject through analysis, comprehension and transformation of the field of activity in which he is included.

Scientific views on the urgent solution of the problem of improving the professional readiness of specialists and the ability of higher educational institutions to prepare for it are analyzed.

Professional readiness is considered from different positions: as an active state of a person, which manifests itself in activity; as a result of activity; as goals of activity; as a quality that characterizes the attitude to solving professional problems and social situations; as a prerequisite for purposeful activity; as a form of activity of the subject; as an integral formation of personality; as a component of socio-professional culture; as a complex professionally significant neoplasm of the individual.

Approaches are identified, through the implementation of which to the fundamentalization of higher professional education by means of multimedia technologies, it becomes possible to fully present theoretical training courses and effectively pass practical training by students, which contributes to improving the quality of training of future specialists in higher education institutions, which will be drawn to further research.

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