Pedagogy and psychology

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Formation of professional competence of the Life Safety

of future professionals in economic direction

      During its development, mankind has always tried to solve the problem of comfortable and safe interaction with the environment. However, if prior to the XX century, these problems were mainly of philosophical nature, today – they became problems paramount practical importance. It should be noted that humanity, in response to the objective, social need to preserve his life, acquired during the previous historical period some knowledge in this area. However, the life experience is not enough for the solution of serious global problems, facing modern society. Nowadays human being became the most non-technological subject of production – he makes many errors, is quickly tired, has no time, can not stand. The establishment of educational subject "Life safety" in Ukraine was initiated by a common order of the Minister of Education of Ukraine, and the Chief of Staff of Civil Defense of Ukraine, which introduced in 1995/96 academic year teaching of the subjects "Life safety" and "Civil defense". Over the past decades certain experience has been accumulated in teaching of the subjects "Labour protection" and "Civil defense", that is why, specialists in this sphere were worried because of introduction of new discipline “Life safety", which became the basic discipline in the set of subjects aimed at studying life safety and human activity. Subjects of the cycle “Life safety” (life safety, fundamentals of labour protection, labour protection in the given branch, civil defense) were later identified as normative and must be included in the curricula for all specialties in education levels "bachelor", "specialist" and "master".

In general form, the purpose of discipline cycle life safety is to develop students' general cultural and professional competences of the life safety defined by educational standards in the form of specific requirements to the graduate of the corresponding educational qualification level of training. Their effective formation is possible on condition of the application of appropriate educational technologies. Teaching technologies for training specialists began to be used in response to the economic and social challenges of post-industrial society. As far back as 400 years ago, J. Comenius suggested the idea regarding the need of technologizing teaching process. He argued that education should become "technical" to be successful. The most important idea of technology – guaranteed result was defined for the first time.

The notion "educational  technology" can be found since  the 20’s of XX century  in the works of V. Bechterev, S. Shatskog, I. Pavlov, A. Ukhtomskiy. But already at that time it began to be treated differently. Notions "technology", "educational technology", "technology of education" remain to be controversial in our time, because only for the notion "educational technology" there exists about 300 definitions, depending on the perceptions of the authors of the structure and components of the educational process. Further studies of A. Aleksyuk, V. Bespalko, M. Klarin, V. Monakhov, A. Pometun, T. Nazarovoy, G. Selevko, S. Sysoevoy, F. Talyzinoy concern classification and analysis of patterns of functioning of educational technology. One of the main challenges facing every teacher – is the choice of appropriate technology for usage in the educational process from their historical and cultural plurality. In this respect, it is not correct to say "new", "traditional" or "innovative" educational technologies in general. Modern educational technologies exist in competitive environments and must ensure the achievement of a certain level of knowledge, skills and competencies to be effective by the results and optimal by expenditure of time, efforts and money.

Accordingly, V. Slastonin believes that one of the most important components of professionalism of modern teacher, his professional competence is a technological culture that allows to correlate individual expressions of the professionalism with the context of the world (national, etc.) pedagogical culture [9]. The final goal of the usage of educational technologies in the educational process in higher education is to create conditions for the establishment and development of the student as a competent specialist in a particular professional activity, who has the necessary qualities: ability to critically study the problems and make optimal decisions from a number of alternatives based on creativity, as well as the ability to cultural and business communication.

      The aim of the research is to analyze the educational technologies aimed at formation in the future specialists competences in the sphere of  life safety for the solution of  professional tasks in hazardous and emergency situations. General cultural competences include: culture of safety and risk-oriented thinking, where life safety issues are considered as the most important priorities in life and work; knowledge of contemporary issues and major challenges of life safety and the ability to determine the range of responsibilities, regarding the fulfillment of the tasks of professional activities including risk of hazards that can be caused by emergency situations, the ability to assess the environment regarding personal safety, collective safety, safety of the community, perform the monitoring of hazardous situations and substantiate main approaches and means of preserving life, health and protection of workers under the threat of appearing hazardous and emergency situations, etc. Professional competences comprise industrial and technological, organizational management, design, educational and advisory, control and advisory activities.

The technological approach to training the future professionals involves designing of educational process, proceeding from educational guidelines, objectives and content of training, forcing to retreat from tradition to teach students the amount of specific knowledge, provides prevalence of changes over the saving. The development of this direction of pedagogy is associated with certain expectations to overcome the problems in education and educational space of the traditional system of education. So in modern conditions of high-tech production training also gradually becomes a kind of production process with guaranteed results and, therefore, in teaching a new direction - educational technology emerges. Setting the targets of education, training, selection of principles, forming on their base the content of training, selection of methods, means and forms of education process organization teachers knew before. But their combination in the system provides the possession of educators the skills of teaching design.

The term "technology" has Latin roots and means "the science of art» (texno - art; logos - word, teaching, knowledge). Typically, the emergence of new concepts in science follows the emergence of a new phenomenon in public life. The rapid development of natural sciences and their applied directions in XIX century, the development of industrial mass production using scientific advances of the time, as it was discussed in the previous section, caused the need for mass education of the younger generation for participation in productive activities. Education has evolved from an elite to a mass and thus acquired some characteristics of "manufacturing process", for which there should exist certain technology. Enhanced technology requires the solution of problems of standardization and unification of "raw materials" and "finished product", manufacturing process, quality control system at all stages.

Pedagogical design innovator is V. Bespalko. He believes that "good, science-based technology of training and education - this is the pedagogical skills" [1]. Design, according to V. Bespalko, will allow to arrange and optimize both pedagogical knowledge and pedagogical activities, because, unlike engineering systems, components and nodes of which are passive in their role in it, the subjects of the educational process actively influence functioning of the educational system, and, in addition, seek to make adjustments to the educational process. In the documents of Association of educational technologies of the U.S.A. it was stressed that educational technology is a complex integrated process (people, ideas, tools and methods of work) to analyze the problems of planning of all aspects of knowledge mastering, and  by the definition of UNESCO education  technology is in - general sense a systematic method of the creation, application and determination of the whole process of training and learning, taking into account technical and human resources and their interaction, which aim is to optimize the forms of education.

B. Hershunskyy outlines the pedagogical technology not only as information technology based on the usage of the most up- to-date technical means, on technological, in fact - on algorithmic level, but also believes that it can and must solve various aim-oriented, content- procedural and control evaluation (effective) educational problems: the structuring and specification of the purposes of pedagogical process, the transformation of the system of scientific knowledge into the content of education, teaching material; analysis of continuity in education in interdisciplinary and Inerdiscipline relations; the choice of methods, tools and organizational forms of educational activity adequate to the objectives and content of education as those that promote differentiation of education, its humanization, humanitarization, activization [3]. Educational technology is, by definition of I. Zyazyun – it is a field of knowledge, which includes methods, tools and theory of their usage to achieve the purposes of education [4]. According to M. Klarin, crucial point for educational technology is the usage of elements of control theory and system approach, and taken from programmed education the instruction on complete controllability of the educational process and its construction on the base of the preset standards [5]. This approach is shared by G. Selevko: "Educational (teaching) technology – it is a system of functioning of all components of the educational process, constructed on scientific basis, programmed in time and in space, which leads to the intended results" [8].

V. Petruk believes that these concepts should be determined as follows: educational technology – it is a combination of achievements of theory and practice, elements of traditional pedagogy and the latest achievements, and technology of education –it is a way of realization of the content of education, provided by curriculum and presentation of the system of forms, methods and means of study that ensure the most efficient achievement of the set goals [7]. The most integral approach to the definition of the notion "educational technology" is the approach of T. Nazarova [2]. According to the author, it developed adequately to the development of pedagogy and transformed into a new concepts: educational technologies, teaching technologies, technologies of education. T. Nazarova has made a description of each notion (hierarchy of goals, objectives, content) and found out the differences between them.  In spite of the fact that today in scientific literature there exists many definitions of the notion "technology" their general content can be reduced to the following: educational technology –it is reproducible way of organization of educational process oriented on diagnostically set aim. Technological character of educational process lies in its controllability.

Classification of educational technologies is designed to organize all their diversity. However, in modern pedagogical science and practice a large number of general and specific, substantial and random, theoretical and practical features of technologies is determined that led to the creation of different classifications. The most detailed classification of educational technologies is offered by G. Selevko [8] in terms of application ( general pedagogical, subjactive, modular, etc.) by philosophical basis (idealistic, materialistic, theosophic, etc.) by the concept of application (associative-reflective, educational, behaviorist, etc.), by the orientation on personality structure (information, self-development, heuristic, etc.), by the nature of the content and structure (educational, educative, secular, religious, humanistic, technocratic, etc.), by the type of control of cognitive activity (lectures, teaching using technical tools, study, using manuals, computer training) and others. Thus, to date there is no universal classification of educational technologies.

The essence of modern educational technologies is to determine the most efficient way to achieve their educational goals. The teaching process should be viewed in complex, as a system, but not be limited to the analysis of separate parts of the system. The educational process should be consistent with scientifically substantiated teaching technology, the main task of which is to determine the most efficient, effective, science-based methods for achievement of teaching objectives and creative impact on practical teaching activity. Educational technology implements the project of teaching process, which stipulates the content, methods and forms of cognitive and learning activity of students. Educational technology differs from the techniques, which consists of a set of recommendations for the organization and implementation of the educational process, by two fundamental points: guaranty of the final result and designing of teaching process that contributes to its effectiveness [6].

The presence of differences in the definition and usage of the notions "technology" and "technique" states V. Yudin, noting that the technology – is a framework, methodology - the shell, the form of the teacher activity. That, scientist believes, allows us to formulate more rigidly the features of technology, in particular: clarity and definiteness in fixing the result; availability of the criterion of its achievement; step by step and formalized structure of the study subjects activity, that determines continuity and repeatability of experience. "The technological approach to learning", said M. Klarin, aims at designing educational process, starting from given initial settings (social order, objectives and content of education). The stages of the design: setting of goals and their correction oriented on achieving the results (this stage is given a paramount importance); preparation of training materials and organization of the training according to education objectives; evaluation of the current results, correction of education process,, aimed at achieving these goals; the final evaluation of the results [5].

Research, performed by V. Holovenkina, I. Dychkivska, A. Dubasenyuk, V. Sablin, S.Slavki, M.I Nikishina allowed to elaborate common approaches to the understanding of the structural components of education technology: systematic, technological, didactic,etc. Application of systematic approach to structurazation of education technology allows to determine such elements [6]: conceptual base; semantic part of teaching: objectives (general and specific); content of teaching material ; technological process - procedural part: organization of educational process; methods and forms of organization  of students' activity; methods of control of students activity, methods and forms of teacher work;, diagnosis of education process.

Didactic approach implements the theoretical aspects of the educational process, determines the overall logic of its construction and includes the following components (steps): objective, content and information, procedural, action-operational, evaluative-effective. Technological approach can be implemented by the following algorithm: preliminary diagnosis of the level of educational material mastering- motivation and organization of education activity-action of education means (interaction of students with education tools)-quality control of studied material. Although in the previous (didactic) option also there exists a procedural component, however, technological approach not only focuses on specific algorithmic presentation of education process, but also fundamentally differs by the availability of the last component - quality control of knowledge mastering.

Thus, structurally all educational technologies consist of the following common elements: conceptual framework; content part of learning: objectives of teaching, content of teaching material; procedural part - technological process: the organization of the educational process, methods and forms of teachers work, their control of the process of material mastering; diagnosis of education process efficiency. Accordingly, the structure process formation of future professionals competence in the sphere of life safety. Developed by us, in technological plan can be represented as a unity of the following steps: determination of education objectives—design of education process-project realization-diagnostics-correction (Fig.).

Educational goals

Learning Objectives:

general and specific

The educational process organization

Management of education process

Methods and forms of teacher”s work

Methods and forms of organization of students learning activities students

Diagnostics of education process

Corrections

Content of educational material

Student



Figure - The scheme of technological process of educational process construction

According to the requirements of technological approach and model curricula of normative disciplines life safety, fundamentals of labor protection, labor protection in industry and civil defense are determined by the content of teaching material, theoretical and practical components, co-relation of classroom and independent work of students and others.

Conclusions

The use of technological approach ensures the formation of students competence in the sphere of life safety for   solution of professional tasks in hazardous and emergency situations; provides the possibility of  choice of optimal, from the position of teacher and each student directions of training, etc. At present stage of development the convergence of these two directions of educational technologies takes place: Information and technological, which stipulates the implementation, investigation and improvement of distance learning technologies.

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