Reforming the system of education in Ukraine is the basis for national and spiritual revival of society, reproduction of intellectual potential for Ukrainian nation, entry of national science and technology to the level of world standards, a guaranty for successful establishment of national identity and democratization processes of society in Ukraine.

National and civil upbringing shall be carried out during the whole learning process of children and youth. It shall provide with overall development, harmony and integrity of personality, its capabilities and gifts, enrichment of intellectual potential of people on this basis, its spirituality and culture, formation of citizen of Ukraine, capable of independent thinking, public choice and activity.

Acquiring the social experience by young generation, inheriting the spiritual acquisitions of Ukrainian people, achieving the high culture of international interrelations, forming the personal features for citizens of Ukrainian state at youth, developed spirituality, physical perfection, moral, artistic esthetic, labor, ecological culture is the main purpose for educative reforms of the state.

Keywords: pre-occupational training, students.
Introduction

The President of Academy of Pedagogical Sciences of Ukraine V.G. Kremen mentions that namely education serves to assist to form the intellectual potential of nation, overall development of personality as the highest value of society, to become a powerful factor for development of spiritual culture of Ukrainian people, reproduction of productive forces in Ukraine\(^1\).

The changes that take place now in the system of higher education in Ukraine cannot enter into the global project of continuous education if the cardinal changes did not occur in other degrees and forms of education, and first of all in the sphere of secondary education. Now we observe the tendency in development of secondary into general education, establishment of possibilities for all to receive higher education during the life and not directly after graduation from school. The concept of continuous education sets the task to secondary education – to prepare schoolchildren at the same time to enter to the working life and to enter to a higher school. That’s why the tendency in approaching the general education training to occupational technical education is observed in many countries.

As O.V. Chalyi\(^2\) thinks, the new interdisciplinary scientific direction, which was called as “synergetics” by professor from Stuttgart university G. Hagen, started being formed in the 80-ies of XX century. The content of this term is in semantics of Greek word “synergeia” that means the joint collective influence. As the researcher mentions namely this term historically appeared in high antiquity in developed civilizations of Rome and Greece, first of all in relation to understanding the cooperative effect of medicinal substances on human organism.

In our opinion, it is also important to mention the main principle by Rene Tom, which states that qualitative researches of processes and system is not in any way something secondary in relation to the quantitative one, vice versa, it has the fundamental character\(^3\).

As A.K. Aylamazian and O.V. Stas mention, the non-linearity describes the tendencies for different processes and system to instability, transfer to the chaotic motion. Hence, taking into consideration the linearity and non-linearity provides with more adequate reflection of real processes in different systems because using them the unity of stability and instability, which is the core for content of any motion, is expressed\(^4\).

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As O.V. Chalyi mentions, the complex and diverse development processes of nature and society gradually receive more adequate methods of research, which are based on achievements of synergetics and other sciences. These methods are constantly intensively developed and enriched with new ideas. Such processes as spontaneous complication of biological objects, correlation of structure forming processes, cooperative character for run of these processes at large space and time intervals, significant responses to weak external influences, inherent to many systems, have already found their explanation on the basis of them.

Laureate of Nobel Prize I.T. Prygogene mentions that all systems contain subsystems, which constantly fluctuate. Sometimes a certain fluctuation or a combination of fluctuations may become so strong that the structural organization of system does not sustain and is ruined. At this critical moment (at point of bifurcation) it is principally impossible to anticipate in which direction the further development will occur: whether the system would start degrading or would transfer to the new higher level of arrangement or organization (which was called as dissipative structure by I.R. Prygogene School).

The management of non-linear system means the transfers of system from one to another possible way of development for it. For that, it is necessary to influence on the system at the moment when it is in the state of instability (near the point of bifurcation), hereby it is necessary to organize the influence topologically very clearly and namely such influence will transfer the system to the desired way, possible for it. Hereby such influence may be very weak but, most important, very exact, it may cause to the radical change in all evolution of the system because the development of system after this influence may come by another way that enforces to the brand new future of its state.

We owe to L. von Bertalanfi for general conceptions about systems, who wrote: “Life is not only the structure but the process that supports the structure.”

According to the theory by M. Eygen, self-organization is not a stable property of substance, which compulsorily appears at any circumstances. Certain internal and external conditions should be followed; first of all the complex process would occur, thus the commands (instructions) that come from microlevels are necessary for appearance of self-organization process.
It is interesting to mention V.I. Arnold’s general considerations on theory of catastrophes about tendencies and principles for transfer to “the best state” of system of any nature (physical, chemical, biological, social, political, etc.), which are set in monograph by O.V. Chalyi.

- “Principle for fragility of good (stable) things”: The system, being at stability border, more likely transits to instable state. It relates to the following, rather comprehensive rule from intuitive point of view: “good” (in particular, stable) systems shall meet some (rarely many) requirements, while “bad” systems may have even one disadvantage, i.e. the symmetry between “good” and “bad” systems is absent in this sense.

- “Principle for worsening on the way to better things”: Worsening takes place in the process for successive evolution of system to the best stable state from bad instable one, besides, worsening rate grows at the initial stage of process for transition to better state. Maximum of contraction on the way to better things is realized until reaching the worst state. Further the contraction in this worst case is decreased and may completely disappear when system is close enough to better state.

- “Principle for jerking improvement”: If the system rushes by the worst state with jerk but not during the process for gradual evolution and turns out to be near good state, then further it spontaneously moves towards this good state.

- “Principle for evolution to catastrophes”: Ignoring the main laws of nature and society, which are based on effect of feedback (it is first of all personal responsibility for decisions taken in public life and policy) leads to catastrophe.

The modern pedagogical system may be considered to be open – objects and subjects of educational process freely exchange the great volumes of information between themselves and environment. Hereby, of course, we may assume the existence of pedagogical system, which is described using the mathematical model (such examples exist in mathematical psychology) but with the same probability it is possible to assume that complex dynamic pedagogical systems cannot perfectly be described due to analogy with mathematical models or using them. The model shall relate the dynamic characteristics of the system (intensity of growth and use of elements-features) with the function of system state, which characterizes the changes of its ordering. The model shall be non-linear because it shall describe qualitative and quantitative changes in the system. The mechanism

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for reverse relation of the system with the environment will also be included into the model\textsuperscript{10}.

Recently the problems of self-organization, which are studied by synergetics, become urgent and for many sciences, starting from physics and finishing with education.

The researchers of self-organization process proved that mainly two parameters influence on the level for organization of any system: intensity in growth of a number of system elements and intensity in use of elements in the process for system function.

According to conclusions by O.V. Chalyi, the positive meaning of synergetics for modern education is that:

- It is possible to integrate the knowledge from different disciplines, to strengthen the interdisciplinary relations, to explain unity of laws for development of nature and society.
- Synergetic approach, use of its concepts and methods assists to full realization of the main didactic conditions for organization and fulfillment of educational processes, based on its main principles – scientific quality, systematic character, unity of the concrete and the abstract, theory and practice relations, etc.
- Synergetics as a sphere of scientific cognition unites various phenomena of nature and society, which are now referred to the competence for different spheres of scientific knowledge.
- The development of synergetics at the end of the century allows developing the new “natural philosophic” approach to study the urgent problems in development of nature and society that significantly compensate differentiation processes, which were characteristic for development of science during recent centuries\textsuperscript{11}.

From abovementioned it is obvious that we can do nothing without axiological approach and its practical use in training of future doctor. Of course, the considered synergetic approach does not exclude the possibilities for self-determination of value orientations. In its turn, the value approach assumes the consideration of self-organization, self-development of a person of future doctor as a value. It would be appropriate to unite these approaches and further to consider the pre-occupational training of pupils in terms of value synergetic approach, which is understood as a theoretical methodological strategy for pre-occupational training of pupils, based on humanistic values and necessity to take into consideration the possible self-organization of system of pre-occupational


training.

As K. Korsak mentions, it arises from the analysis on consequences from reforms of school in Ukraine that reforms are a very attractive object for scientific research. Considering the changes in systems of education in former socialistic countries, the foreign experts distinguished five main variants for reforms and some less important intermediate ones: corrective events as a component for initial political economical changes and the response to negative liquidation of some remains from the past in management of education and in its content; excessive reforms that looked as drastic political changes; modernization reforms, directed to remove the disadvantages and to reduce the lag from developed countries, in particular in the sense of learning and its standardization (the lack of funds and political will has stopped these reforms at the intermediate state “form without content”); structural events, directed to significant improvement of legislative base, structure of certain levels of education and management; systematic reforms of the deepest character that include the change in paradigm and inner logic in construction of system of education, their relation with social cultural environment.

One of secondary general education establishments is lyceum, which is a secondary, educational, medical special, state public institution of education, established at higher medical school. The mentioned lyceum provides with the acquisition of education beyond the state educational minimum, carries out the pre-occupational training of talented youth for study at higher medical school and further professional work.

The pre-occupational training of senior pupils at lyceums of medical specialization is an integral component in the integral system of continuous medical education. The theoretical methodological basis for pre-occupational training of pupils at experimental medical lyceums became the developed and grounded technological model for secondary general education establishment, which activity is directed to implement the functions for training of pupils for medical specialties (general education, occupation-directed, personal developing and humanistic functions). At the same time the abovementioned model defines the purpose and content of pre-occupational training of pupils for medical specialties.

The activity of medical lyceum is built taking into consideration the following necessity in:

- Organic relation with world and national history, culture, traditions;
- Independence on political, public and religious organizations;
- Differentiation of content and forms of study for lyceum pupils;

Flexibility and prognostication of pedagogical influence;
Implementation of paradigm for developing study;
Unity, succession, continuity and variance of forms and methods of study;
Entry into European educational space.

The peculiarity in operation of medical lyceum is that it is an organic part, structural subdivision of higher medical school. That's why the medical lyceum as an establishment of secondary education accumulates and integrates all deep, consistently associated elements of content, forms and methods for training of future doctors in their contradictions, cause-effect relationships, perspectives for development and tendencies for the future.

The education assists to form the high linguistic culture and linguistic competence of citizens, respect for state language, tolerant attitude to different language speakers and cultures. We proceed from the assumption that the important factor in training of future specialist is the professional functional speech, which may be considered as an integral part for professionally significant qualities of specialist. Besides, we will assume that the professional functional speech may be considered as a linguistic activity, which anticipates the fluent possession of special medical terminology under conditions of study, approached to professional activity 13.

The social and individual personal interest and values in the process of pre-occupational training of pupils significantly coincide that influences on dynamics of educational process in positive plan. The pedagogical collective shall take it into consideration in its work.

The organization of educational process at Ukrainian medical lyceum is based on humanistic and democratic principles, assists to form the intellectual and highly cultured person, upbringing the citizen – worthy representative of Ukrainian people, their Motherland.

Covering all these aspects, the philosophy for development of Ukrainian medical lyceum, being based on cultural creative function of education, defines the following top-priority directions:
- To develop the feeling for respect of its Motherland, national identity at gifted pupils’ youth;
- To put the understanding of needs by personality, community, state and world civilization;
- To develop the conception about plurality of world images;
- To bring up the ability impartially to perceive other cultures, systematically to think, creatively and responsibly to act.

13 Romanova L.Ya. Forming the professional functional speech at lyceum pupils while studying the economical disciplines: Author's abstract by Candidate of Pedagogy. 13.00.04. – K.: Institute of pedagogy and psychology of professional education at APS of Ukraine, 2000. - 19 p.- P.14
According to the modern educational concepts the activity of Ukrainian medical lyceum is built on the following principles:

- Availability and equality in conditions for development of each lyceum pupil with the purpose of complete implementation of his/her capabilities, talent, overall development;
- Humanization, humanitarization and democratization of educational process;
- Organic relation with world and national history, culture, traditions;
- Independence on political, public and religious organizations;
- Differentiation of content and forms of study;
- Flexibility and prognostication, developing character of study;
- Unity, succession, continuity and variance of study;
- Interrelation with education of other countries.

Curricula, programs, textbooks and study guides for pupils and pedagogical collective at medical lyceum shall be developed taking into consideration the specialization of lyceum and pursuant to combination of theories on formal material education; didactic encyclopedism and academicism, formalism and utilitarianism; classics and realism; practical direction for content of education and provision with self-development and self-determination of personality and its mastery with universal means of activity.

The top-priority in formation of content of education at medical lyceum is paid to transformation of modern scientific knowledge into content of education and provision with spiritual, political, economical social and professional competence at young citizens of Ukraine on this basis. The content of education at Ukrainian medical lyceum is built on state standards for secondary education taking into consideration the regional, ethnocultural and national traditions of Ukrainian people.

The analysis of psychological pedagogical literature, own researches and the experience from activity of lyceum show that the efficiency in pre-occupational training of lyceum pupils depends on:

- Improvement of professional orientation work among pupils at general education schools, establishment of special classes with advanced study of special subjects;
- Development of scientific approaches to selection of gifted children for mastery of medical occupation, establishment of system on psychoanalysis of future lyceum pupils;
- Improvement of fundamental general education and medical biological training, necessary to continue the study at higher medical schools, labor activity;
- Establishment of coordinated programs, which would provide with
permanency of study at lyceum and higher school;
• Provision with the level in possession of foreign languages, which would enable to master certain courses in foreign language and to continue the study in other countries in the world;
• Establishment of innovative system for medical biological education, using the achievements by advanced national and world pedagogy and psychology;
• Development of systems for teaching methods of academic disciplines that would unite the individual and differentiated approaches to study and development of pupils and would provide with the deep and conscious mastery of basic knowledge with maximum satisfaction of individual demands and interests of personality and its real capabilities, inclinations and opportunities;
• Development of creative potential at teachers, their professional self-improvement, adaptation of teachers at higher school to educational process at lyceum;
• Establishment of system for complex provision of educational process with textbooks, didactic materials, presentations, development of learning books and methodical guidelines;
• Improvement of system for selection of highly qualified pedagogical staff for work with lyceum pupils.

The 28th UNESCO World Conference on problems of higher education mentioned that the new information technologies do not reduce the needs in qualified teachers, although they change its role in relation to the educational process. It was emphasized that the constant dialog of teacher and pupil, which transforms the information into knowledge and its understanding, acquires the leading importance.

It is obvious that only pedagogical collective, being capable to implement the newest achievements of world pedagogical practice into educational process taking into consideration the specialization of lyceum and national achievements, can make the cardinal transformations in the content, forms and methods for learning and upbringing, perform any social order in full, satisfy all educational interests of citizens. The essential influence on the level in professional competence of teacher is already for mastery of methods for scientific search and research. In particular, V.I. Zagviazynskyy, M.M. Potashnyk, R.M. Skulskyy, S.P. Balashova et al emphasize the necessity to pay attention to development or research skills at teacher. It is anticipated to establish the close relations of

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lyceum with departments of higher medical school. Hereby, the experimental and scientific activity of teachers and pupils is of great importance. Thus, we include the pupils’ scientific societies, school divisions of Minor academy of sciences into the structure of scientific methodic work at lyceum. We can fully agree with O. Sydorenko that the content of scientific methodic work at establishments of the new type includes such direction as formation of intraschool culture, creation of image, original model for modern educational establishment, production of ethic and moral rules for co-life, general culture of social and private life of everyone. It means that the whole range of opinions and relations that define the vital activity of pedagogical collective and development of school is formed.

The fundamental general education training and medical biological education of pupils is provided by close interaction of methodic commissions at lyceum with departments of higher medical school. In addition to production of special knowledge, abilities and skills, related to the specialized medical biological training, the lyceum shall anticipate the conditions for overall development of personality at each pupil as the highest value of society: disclosure of his talents, mental and physical capabilities; upbringing the high moral qualities; inoculation of inclination in the name and for the benefit of human. It means that we speak about formation of citizen, capable of conscious social choice.

Thus, the conceptual principles for organization of pre-occupational training of senior pupils at lyceum as a component for system of continuous medical professional education are:

- The system of professional training of future specialists with medical specializations acquires the integrity and continuity providing that the higher school and postgraduate stages of medical education are based on pre-occupational training of pupils’ youth at special secondary general education establishments – lyceums;
- The system of pre-occupational training shall cover different directions in vital activity and creativity of its pupils;
- The efficient pre-occupational training of pupils’ youth may be carried out only upon the condition for establishment of integral system for function of secondary education establishment – lyceum, which activity is directed to psychological pedagogical support to professional establishment of senior schoolboy, his personality, conscious professional self-determination, provision with further professional development at higher school;
- The pre-occupational training of pupils’ youth as a link of continuous professional education shall establish the foundation for development of individual professional competence, which requires possessing the

knowledge and skills, necessary for it, experience in social activity, among which the most important one is the skills to study on its own, to acquire the new knowledge, to analyze and to integrate the new information. The primary professional training is considered as a component of pre-occupational training;

- The pre-occupational training of pupils’ youth acts in organic unity of the general, special and individual one. As the general, it reflects the laws to acquire the general secondary education and is a component of the abovementioned system; as the special it has its own specificity, stipulated by peculiarities for future professional activity of medical worker, necessity in advanced study of special subjects; as the individual it reflects the dependence of pre-occupational training on individual peculiarities of pupil, level in his cognitive interests, personal qualities;

- The pre-occupational training of senior schoolchildren is considered as a way to bring up the professional significant qualities for future doctor at them. Besides, this is the way to develop the creative gift of pupil, his/her talents, versatile interests, intelligence, his/her devotion to Motherland, realization of his/her civil position and responsibility;

- The pre-occupational training of pupils shall assist to development of capability of communications (which means not only the efficient communication between people and culture of “communication” with different sources of information), development of own human readiness for perception of new information, formation of qualities, necessary for it. It acquires the special importance at high rates of changes in technologies of the corresponding occupation.

Let’s mention that the study process shows the capability of human to learn the new things and the process of relations – how it copes with the changes in the society and change in requirements to the level of its professional workmanship. The pre-occupational training of pupils at lyceum of medical specialization under such conditions may be considered as the system for training of senior schoolchildren for the future professional activity under conditions of special secondary general education school. The system of training is directed to form the readiness of personality for professional study in chosen specialization at higher medical school; formation of professionally significant qualities for doctor, professional interests, motivation for achievements in chosen sphere; improvement of adaptation for process on acquisition of higher medical education; development of capability pf professional self-improvement during professional activity. The efficient pre-occupational training of pupils’ youth in medical specialties may be carried out upon the condition for establishment of integral system for function of secondary education establishment – medical
lyceum, directed to psychological pedagogical support to professional establishment of senior schoolboy. The purpose and measure for efficiency in this establishment is the personal development of pupil, his/her conscious professional self-determination, further professional development at higher school.

Цехмистер Я.В. Фундаментальные принципы до- профессионального обучения молодежи

Реформирование системы образования в Украине является основой для национального и духовного возрождения общества, воспроизводства интеллектуального потенциала для украинского народа, вхождение отечественной науки и техники на уровни мировых стандартов, с гарантией успешного создания национальной идентичности и процессов демокratизации общества в Украине.

Отмечается, что национальное и гражданское воспитание осуществляется на протяжении всего процесса обучения молодежи. Оно должно обеспечить общее развитие, гармонию и целостность личности, ее возможности и преимущества, обогащения интеллектуального потенциала на этой основе, духовности и культуры, формирование гражданина Украины, способного к самостоятельному мышлению, общественному выбору и деятельности.

Определено, что именно благодаря обобщению социального опыта, молодое поколение, следуя духовным достояниям украинского народа, достижениям высокой культуры межнациональных отношений, становится способным к формированию индивидуальной (личностной) украинской гражданственности. Таким образом, развитие духовности, физического совершенства, нравственной, художественной эстетики, способности к труду, экологической культуры является главной целью воспитательных реформ государства.

Ключевые слова: предварительная профессиональная подготовка, студенты.