ORIGINAL ARTICLE

DEVELOPMENT OF MEDICAL STUDENTS CREATIVITY AS A PRIORITY OF MODERN HIGHER EDUCATION

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Anatolii V. Vykhrushch[1], Tetiana I. Khvalyboha[1], Nadiya O. Fedchyshyn[1], Mariya A. Bagriy[2], Larysa Ya. Fedoniuk[1], Hanna M. Protsyk[3], Solomiia I. Hnatyshyn[1]

[1]I. HORBACHEVSKY TERNOPIL NATIONAL MEDICAL UNIVERSITY, TERNOPL, UKRAINE

[2]VASYL STEFANYK PRECARPATHIAN NATIONAL UNIVERSITY, IVANO-FRANKIVSK, UKRAINE

[3]VOLODYMYR HNATIUK TERNOPIL NATIONAL PEDAGOGICAL UNIVERSITY, TERNOPL, UKRAINE

ABSTRACT

The aim: To present an overview of the problem of creative skills development at the level of higher education, analyse the notions "creativity" and "creative skills", investigate the main conditions of the creative skills development in medical students of higher educational establishments in Ukraine and abroad.

Materials and methods: Experimental verification of the conditions of the medical students creativity development was conducted in the period from 2017 to 2019 academic years within two groups of students: Ukrainian students and foreign students. In the process of the study, the peculiarities of the students' creativity development were established through surveys and questionnaires.

Results: On the basis of an overview of the problem of creative skills development within the context of modern education, the notions "creativity", "creativeness" have been analysed. The main strategies and methods aimed at the creative skills development in medical students have been investigated. A brief overview of historical development of the problem of creativity in pedagogy of higher education has been suggested. The given paper analyses the main directions of reforming the system of higher education, in the context of which the development of students' creativity takes place, as well as the methods and techniques aimed at developing the creative skills of the students.

Conclusions: The problem of the development of person's creative abilities involves a number of logical steps: the definition of the essence of this concept, its significance in the process of human development, society's need in people with creative abilities, retrospective assessment of the problem, importance of educational systems, and the establishment of consistent patterns of the process.

KEY WORDS: creativity, higher education, philosophy of education, personality, higher medical educational institutions

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INTRODUCTION

The educational policy of every country has its own specific peculiarities, which are determined by social, economic, demographic factors, the level of elites, the system of scientific support, traditions, and understanding of the laws of development. Over the past decades, comparative studies have become increasingly important. Modern research is difficult to imagine without comparative characteristics, the ratio of domestic and foreign experience. It is important to switch from description to predictive modelling. If we analyse the normative documents adopted in different countries, it is possible to make a clear conclusion about the importance of developing creative abilities. This phenomenon has its causal relationships. To some extent, gradual transition to the information society neglects quantitative indicators in the evaluation of professional culture. Free access to large volume of information, the dissemination of information technology determines the priority of creative activity, plasticity, readiness for self-improvement. Those, who will prioritize the development of creative abilities at all levels of educational system, rather than at individual stages, will have the advantage. For example, in Polish law, in recent years this has become particularly evident.

THE AIM

The article aims at presenting an overview of the problem of creative skills development at the level of higher education, analysing the notions "creativity" and "creative skills", investigating the main conditions of the creative skills development in medical students of higher educational establishments.

MATERIALS AND METHODS

Experimental verification of the conditions of the medical students creativity development was conducted in the period from 2017 to 2019 academic years within two groups of students: Ukrainian students and foreign students. In the process of the study, the peculiarities of the students' creativity development were established through surveys and questionnaires.

RESULTS AND DISCUSSION

In international academic programs, creativity begins to dominate. Let us consider as an example the popular program PISA, which is held every three years, starting in 2000, at the initiative of the Organization for Economic Cooperation and Development (OECD). The purpose of the program is to identify the tendencies in the educational programs outcomes in different countries; factors influencing the level of academic achievements of students in the world. The authors of the project highlighted the three most important aspects of assessing the level of preparedness of students: reading, understanding and interpretation of the various texts they will deal with in everyday life; use of knowledge and skills in mathematics in overcoming various life challenges and problems related to mathematics; the use of knowledge and skills in the natural sciences to solve various life-related problems associated with certain scientific situations. The research focuses not on the knowledge of the material, but on the awareness of the general principles and ideas of scientific theory, the ability to use the knowledge and skills acquired in the school in real life situations [1]. If we analyse the objectives of the program, one can conclude that the focus is on the level of development of thinking, creative potential, practical orientation, logic, combination of teaching and educational aspects. We put an emphasis on these features because higher education develops those abilities that have been developed previously.

The Law of Ukraine "On Higher Education" approved in 2014 establishes the basic legal, organizational, financial principles of functioning of the system of higher education, creates conditions for strengthening cooperation between state bodies and business with higher education institutions according to the principles of autonomy of higher education institutions, a combination of education with science and production with the aim of preparing competitive human capital for highly technologic and innovative development of the country, self-realization of a person, ensuring the needs of the society, the labour market and the state in qualified specialists. Interestingly, the first section of the law begins with the description and definition of the terminology [2].

In the context of our study, let us pay attention to the description of this terminology. In particular, academic freedom is considered as "autonomy and independence of participants in the educational process in pedagogical, scientific and / or innovative activity, carried out on the principles of freedom of speech and creativity, distribution of knowledge and information, promotion of scientific research and the use of their results and is realized with the account of restrictions established by law". As we can see, the issues of innovation and creativity are singled out.

It is important to define the term "higher education", since the content and structure of this basic concept is a peculiar basis for further definitions. According to the authors of the Law, higher education is a "set of systematized knowledge, skills and practical abilities, ways of thinking, professional, ideological and civic qualities, moral and ethical values, other competences acquired in a higher education institution (research institution) in the corresponding field of knowledge for certain qualifications at higher levels of education that are more complex than the level of complete secondary education".

The confirmation of the significance of the meaning of higher education is the structure of the term "competence", which is considered as a "dynamic combination of knowledge, skills and practical abilities, ways of thinking, professional, ideological and civic qualities, moral and ethical values, which determines the ability of a person to successfully carry out professional and further educational activity and is the result of studying at a certain level of higher education". On the basis of these terms, the essence of educational (professional, research or creative) programs is determined. Creation and implementation of state policy in the field of higher education is carried out by ensuring the development of scientific, technical, artistic and innovative activities of higher education institutions and their integration with the production, development of institutions of higher education as centres of independent thinking.

A separate section is dedicated to issues of quality assurance in higher education. Among the main tasks of higher education, it is particular important for universities, academies, institutes to "conduct scientific research and provide creative activities of participants in the educational process".

In a separate section, the peculiarities of the organization of the educational process are analysed. At the same time, the educational process is considered as "an intellectual, creative activity in the field of higher education and science, which is carried out in a higher education institution (research institution) through a system of scientific, methodological and pedagogical activities and is aimed at the transfer, mastering, multiplication and use of knowledge, skills and other competences of the learners, as well as the formation of a harmoniously developed personality". Scientific, technical and innovative activity in higher education institutions is considered as a necessary, integral part of educational activity and is carried out with the aim of integrating scientific, educational and production activities in the system of higher education, and the main purpose of scientific, technical and innovation activity is "to acquire new scientific knowledge by carrying out scientific research and development and their focus on the creation and introduction of new competitive technologies, types of equipment, materials, etc. for ensuring innovative development of the society, training of innovative specialists" [2].

With the account of the content of the law on higher education, a number of important documents have been prepared regarding the regulation of the activities of certain types of professional activities. For example, on September 12, 2018, the Ministry of Health of Ukraine presented the "Strategy for the Development of Medical Education in Ukraine". This document implements a number of interesting innovations. A characteristic feature has been the objective assessment of existing deficiencies, and the definition of priority tasks. Among the shortcomings is the lack of a methodology for assessing the need in training health care workers, reducing the prestige of medical profession, as a consequence – lack of motivation to study in medical specialties, lack of trust in higher medical education institutions. Medical universities do not fulfil the functions of public education in issues relating to health. The authors of the document prove that the content of education needs to be updated, knowledge acquired by students is not always relevant and up to date,

there is a gap between higher education, science and practice; lack of allocations for research, lack of university hospitals, clinical facilities for practical training of students. Of particular interest is the requirement for a change in academic culture, as the medical university / faculty "should become the place of a free open discussion in order to create new ideas and seek new knowledge" [3].

To understand the importance of normative documents of this level, let consider the experience of the USA in this aspect. The Encyclopaedia of Creativity, published in the United States in 1999, lists the main approaches to the development of American student creativity and regulatory acts that control and substantiate this process. One of the long-term projects of development of creative abilities in this country, created by A. Osborne in 1954, realized by the Creative Education Foundation and actively functioning to this day, is described [4].

The United States has a decentralized educational system in which every state defines its own educational orientations and approaches on its own. It was only in 1991 that the National Council on Education Standards and Testing appeared, controlling work of commissions engaged in the formation of the content of academic subjects – mathematics, natural science, the English language, history. The purpose of the Council was to modernize the content of teaching and increase the proportion of the listed disciplines in the curriculum. At the same time, the governmental document "America – 2000: An Education Strategy" was issued, which set goals for general and high schools to substantially raise the theoretical level of teaching courses based on new standards in order for American students at the beginning of the XXI century were able to overtake their foreign peers in the field of mathematics and natural sciences.

A specific role in the development of creative abilities of American students was played by the Commission on Future Higher Education [5]. The Report prepared by this Commission summarizes the results of in-depth analysis of the situation in American higher education, describes existing problems and suggests ways to address them. The Report indicates a direct link between creativity of specialists and innovations. Implementing the program of this document in American universities, teachers attempt to: 1) encourage experiments, actively search for solutions to existing problems; 2) encourage fresh thoughts, avoiding immediate criticism; 3) encourage bold expression of personal ideas and feelings; 4) explain the phases of creative work and the time spent on each phase; 5) develop an understanding of the role of intuition and aesthetic process; 6) encourage students to consider new ideas and put forward hypotheses; 7) contribute to a critical evaluation of ideas.

Furthermore, creative abilities of American students are formed within a multidisciplinary approach that promotes integration of the acquired knowledge and skills in the solution of complex professional tasks. Thus, the processes of integration and cooperation of universities were intensified, which allowed for an interdisciplinary approach to learning. The transition of the American higher education to the interdisciplinary basis of training specialists led to structural changes within the universities themselves, namely the creation of interdisciplinary departments (e.g. Pathology Department including aspects of Pathologic morphology, Pathologic Anatomy, Forensic Medicine).

Within the national education policy in the USA, development of intellectual and creative abilities of talented students occupies an important place. Activity of American universities goes far beyond the country, covering almost all countries of the world. By working with the best universities and research institutions in other countries, the USA universities are able to teach talented students around the world, realizing continuous exchange of knowledge and borrowing advanced achievements from different fields of social activity. Studying abroad, talented students can deepen and improve their intellectual and creative abilities, as well as efficiently organize their time choosing a program that is optimal for their needs and capabilities. These programs include fully integrated programs of study in a foreign university; programs specifically designed for students of American universities; hybrid programs.

The main methods of work aimed at the development of creative abilities of medical students are the following:

- to provide medical students with the opportunities to study subjects on their own choice, take part in various programs, competitions for grants, awards that students can use to study abroad, to conduct scientific research. It enables students to participate in scientific work and create inventions that promote creative thinking and responsibility for their own actions [6].

- to use teaching methods that stimulate mental abilities of students, motivate for obtaining new knowledge, develop creativity, independent learning, with a student selecting teaching material and the way to study it; self-guided learning process (self-directed study), with a student choosing a way of learning; and educational programs focused on student's individuality (learner-centred program);

- to provide a wide choice of rates of learning, learning objectives, methods and educational material, requirements for the level of academic achievements;

- to use the technology of individualized learning in all subjects beginning with minimal modifications in the group training to fully independent learning, which helps to uncover intellectual and creative potential of an individual and significantly increases the competitiveness of the future expert in the international labour market;

- to use the achievements of science and technology, encouraging strong investment in education and science.

Obviously, these factors such as the dominance of higher medical education in the United States in terms of financing, growth rate and logistical resources, its clear orientation to development of doctor's personality who is independent and full of initiative, demonstrates flexibility in learning, possibility of the selection of subjects, teachers and training rates, lack of commonplace educational standards, in addition to standardizing the testing of secondary schools leavers, full autonomy of universities, lack of stu-

dents overload with academic subjects, self-study, which contributes to the formation and development of critical thinking, intellectual activity and ability to solve problems and make decisions constant control over the process of mastering the knowledge of students, testing, writing scientific papers, participation in conferences and scientific seminars, flexible evaluation system, providing students with teaching materials, opportunities to use international databases, libraries and other high-technology sources of information, promote the formation of creative thinking and development of creative abilities of medical students.

It is also worth mentioning that the effectiveness of higher medical education in the USA is achieved by the so-called "teaching pyramid", which is followed in most USA medical schools. According to it, the effectiveness of learning depends on the method of training, at which time allotted for lectures is 5% of the overall length of the course, independent reading – 10%, audio- and video learning – 20%, showing a demonstrative material – 30%, discussion, discussion in small groups – 50%, practical learning – 75%, collective learning (students teach each other) – 90% [7].

In general, illustration of the problem of creativity development in normative documents is important as it gives a peculiar system of coordinates for executive authorities, supervisors, the scientific community. In addition, the expert environment, whose representatives prepare the legislative documents, obviously rely on the achievements of domestic and foreign science.

To solve this problem, its scientific assessment at the monographic level is important. As for the problems of creativity, we have a paradoxical situation. On the one hand, there exist thousands of papers in different countries. On the other hand, there still are discussions between representatives of various scientific schools, the lack of recognized approaches, ranging from the definition of basic concepts and terminology to the laws of creativity development.

Let us consider the individual aspects of the problem under investigation. The peculiarity of modern development of science is manifested in the fact that in the end, at least at the academic level, the main priorities have been determined [8]. V. H. Kremen states that "the development of a modern society can only be provided by a person of a new type, i.e. a competent, innovative, thinking and living in civilization dimensions. The development of their creative potentials, based on reason, knowledge, wisdom, which transforms a human into a personality, is the quintessence of modern philosophy of human-centeredness, which focuses on the development of human self-consciousness, an understanding of its own essence that does not remain unchanged throughout life. The philosophy of human-centeredness implies the comprehension of a personality, one's own reflection and development in accordance with the internal instincts, in other words the creation of the self-concept of a person" [9].

In recent years, in addition to the philosophy of education, the philosophy of didactics is actively developing. The philosophy of didactics, in our opinion, must, first of all, help to solve the following problems: 1. Perception of the world. 2. Self-knowledge. 3. Methods of cognition. 4. Definition of the main terminological concepts: man, individual, person, education, upbringing, science, law and regularity, development, teaching, learning on the basis of principles of logic. 5. Combination of theoretical principles of epistemology with the practical aspects of the organization of the educational process. 6. Regularities of creative and innovative activity. 7. Regularities of cognitive process management. 8. Regularities of self-improvement. 9. Praxeology. 10. Crisis phenomena of cognition. 11. Principles of educational policy in the conditions of globalization. 12. Questions in the process of approaching the truth. 13. Intellectual potential of society. 14. Modelling of cognitive activity. 15. Monitoring of intellectual development of person and society [10].

The system of basic pedagogical terms and concepts is extremely important for the preparation of pedagogical dictionaries of a new generation, comparative studies of comparative-oriented direction, the development of pedagogical theory. In determining the essence of the main terminological concepts, scientists' points of view are different. It is interesting to note that "a man as an individual is a representative of the biological species of Homo sapiens, with all the complex physical nature, vital needs; he / she is connected with the material world, the laws of its development. From their birth, an individual, being a natural "bodily person" due to the accidental, unpredictable combination of genes, is given certain desires and abilities (intellectual, logical, linguistic, musical, intuitive, creative, etc.), as well as health, individual appearance. In search of oneself outside of the nature, a man uses game and creativity. They design the desired image and take the risk in making a choice, leaving behind all other possible options. A man lives in a certain cultural paradigm, which asks for a certain orientation and provokes certain associations. A man lives in a state of incompleteness. They have the past, the present and the future. Dwelling in the realm of the possible, a man constantly demonstrates the state of dissatisfaction through their activity, being aware of the special nature of their life as one of the levels of self-organization of the world." [11].

Thus, within our research, we consider a man as a living being capable of development and self-knowledge. An individual is a person who has a system of unique qualities. And personality, in our opinion, is an individual who is capable of self-improvement and creative activity.

It must be noted that in the psychology there have been many attempts to clearly identify the qualities typical for creative personality. We emphasize that these attempts of all importance have one drawback. There is always something else, a certain latent feature that provides insight, or what Epicurus called the "a throw of thought" [12].

The adoption of effective managerial decisions implies the availability of objective information. Let us name one of the examples of sociological researches. According to the authors, in the modern Ukrainian higher education, there is "a fairly high percentage of teachers who are not prepared to perform their professional duties with the proper

Table I. Motivation for choosing medical profession

Choice of medical profession		
	Ukrainian students (%)	**Students in the USA (%)**
Humane and noble profession	36	36
Prestigious profession	31	24
Salary	13	37
Parents' approval	20	3
Total	100 %	100 %

quality". On the one hand, it is explained by the random choice of the profession, on the other – by the low level of professional training in higher pedagogical institutions. According to a survey conducted by the Ukrainian Centre of Economic and Political Studies named after Olexander Razumkov, in all regions of Ukraine on September 18-24, 2002, 41.6% of respondents believe that the students assess the authority of the teacher as "low", 42.6% as "average" and only 9,1% of respondents think that the teacher has a high level of authority among children. Only 11.4% of respondents believe that the teacher has a "high" authority among parents, 45.8% of respondents consider teacher's authority in the parent medium to be "middle", and 34.8% "low". In recent years, a large number of the most talented and trained teachers have transferred to other branches of higher education to receive higher salaries from Ukrainian schools, while in the schools of certain regions, the number of retired teachers increased by 10-40% [13].

Within the given paper, it is valuable to present the results of the research which was conducted was conducted in September 2017-2018 and 2018-2019 academic year at Ternopil National Medical University. It was carried out in the form of a written questionnaire. Students were supposed to give a single answer to each question. It encompassed 274 second-year Ukrainian students of medical, dental and pharmaceutical faculties and Institute of Nursing and 228 first, second and third year foreign students, who have come from the USA and study at the International Students Faculty and International School of Medicine.

Analysis of the responses given by Ukrainian and American students allowed us to single out certain trends and specific differences in their outlook and professionally relevant persuasions and attitudes. A positive peculiarity is that the main motive that prompted Ukrainian students to choose a medical profession was that they believe it to be humane and noble (36%). Despite this, many students consider other important criteria when choosing a profession; particularly that it is prestigious and well-paid (31 % and 13 % respectively).

An important feature is the large number of students (in the comparison with Western countries) who were prompted to choose medical profession by parents (20%). Unlike Ukrainian students, American students are mainly guided by the fact that this profession is highly paid (37%). A large number of students (36%) also chose medicine because it is a humane field of activity and a prestigious one (24%). It is significant that an absolute minority (3% of students) chose the medical profession because it was the desire of their parents (Table I).

Assessing the state of higher medical education in Ukraine, many students (44 %) recognize the need to borrow foreign experience of higher medical education organization. Moreover, half of the Ukrainian (47 %) noted the need to adapt international experience to the educational conditions of Ukraine. One third of respondents (39 % and 26 %) believe that the experience of Germany and the United States concerning the organization of higher medical education is most valuable. Interestingly, that in this category Ukraine takes the third place [14].

The answers of the foreign students were somehow different. The overwhelming majority of students (77 %) believe that the highest level of higher medical education is in the USA. Fewer respondents chose Germany, Canada and Austria.

It is evident that the results of the suggested survey are ambiguous. However, they helped us to identify the negative phenomena in terms of motivation and persuasions of Ukrainian students, medical students in particular, which must be eliminated in order to effectively achieve the goals set by the educational system of Ukraine. Undoubtedly, the differences between Ukrainian and American students cannot be absolutized. It must be taken into account that the differences between them are caused by the objective factors, such as lifestyle, economic conditions, labour market maturity etc. Nevertheless, the suggested survey is important in the context of reformation of education and finding new guidelines for the youth.

The main factors affecting the formation of motivational orientation and professionally relevant attitudes in learning is the content of the material (its actuality, correspondence to students' age), forms of teaching, deep understanding of possible professional prospects. We consider introduction of some theoretical and practical aspects of medical students' creativity development in the United States as a possible direction of reformation of higher medical education in Ukraine. These aspects include: adequate professional counselling since secondary school; the use of teaching methods that activate the creative abilities of students, motivate them for knowledge, creativity; a wide range of syllabi, curricula, learning methods, teaching materials; real, rather than ostentatious implementation of the principle of continuous medical education. Moreover, from this point of view, it is extremely important to enhance the participation of professional medical associations in

regulation of continuous medical education, to introduce a compulsory intermediary stage between school and medical university – medical college, to facilitate educational process with international textbooks, manuals, collections of tests, to establish a wide network of well-equipped university hospitals by promoting financial and economic autonomy of universities, to create interdisciplinary and integrated curricula that will provide a practical understanding of the learned material.

Let us pay attention to another interesting tendency. We mean a critical attitude to the excessive, according to the authors, attention to creativity, the uncritical use of this concept. For example, the author of popular books on pedagogy, a well-known didactic specialist, I. P. Pidlasyi called this phenomenon a dangerous illusion that affected pedagogy and "was reduced to a primitive verbose conclusion that learning is a creative activity. This conclusion results in the suggestions for the teachers – to act, to ruin the old canon. These canons were compiled for other conditions, for another school, for yesterday's students. Today everything is allowed, which is not forbidden". No one can question the value of creativity. But it is valuable only when it is about creativity, and not about half-literate, amateurish efforts arising from ignorance of how to teach and educate. It happened that many teachers, violating the basic principles of teaching, went down to the simple imitation of what they had once seen in the classroom themselves. The justification is simple: I work creatively, non-standard, I have the right to my own moto. So it turns out, you can act "in any way", as you please? It is nothing else than nonsense what is proclaimed from high educational stands: every second Ukrainian teacher works in a creative manner.… This is just a manner, but not success" [15]. This is the case when rational criticism is much more important than the mass approval.

Significant success in the theoretical substantiation of creative activity has been achieved by representatives of the United States. Many authors indicate blurring and lack of clarity in the concepts of "creativity" and "creativeness". Today, we can observe the systematization of accumulated empirical facts and establishment of a typology of creativity. Thus, creativeness is seen as a separate aspect of creativity, as an internal resource of a person.

Researchers in the field of psychology of creativity and creativeness (H. Eysenck, G. Altshuller, D. Bogoyavlenskaya, M. Boden, M. Wertheimer, J. Guilford and E. Torrance) speak about this phenomenon from different methodological concepts using rich methodological research tools. The logic of research requires defining the most important views on this phenomenon.

The founders of the modern theory of creativeness are J. Guilford and E. Torrance. They linked this personal quality with divergent thinking, which (unlike convergent) is aimed at solving problems, allowing some non-standard decisions [16; 17].

Within his cognitive theory, G. Kelly considers creativity as an alternative to the commonplace, routine. Without using the term "creativity", he developed an original theory of creativity and a creative personality, being the first to describe hypothetical alternative thinking [18]. For G. Kelly, a man is a scholar, a scientist who effectively and creatively interacts with the world, interpreting it, processing the information, predicting the events. Human life is a constant investigation, hypothesizing about a permanent reality in which a human tries to predict and control events. World picture is completely hypothetical and people formulate hypotheses, test them, carrying the same mental action, which are used by scientists in the scientific research. Thus, life is a process of creative research [19].

As it was demonstrated above, two main approaches can be singled out in a variety of interpretations of the creativity: 1) an approach aimed at understanding creativity itself, which presents the creativity as a human activity, the result of which are new material and spiritual values that have social significance. Although the creativity is the result of work and efforts of an individual, it always has social character [20]; 2) an approach aimed at understanding creativity / creativeness, suggested by E. Fromm, which consists in understanding creativity as the ability to wonder and to learn, to find solutions in unusual situations, to focus on opening a new and to deeply understand one's experience [21].

Consequently, both creativity and creativeness are related to socially significant creative activity of a man, but the creativity, in our opinion, should be considered as characteristic of the process, activity performed by an individual, noting it as an effective procedural side, while creativeness is a quality (property) of a gifted person, which is the determinant of creative man's relation to the world, thus, displaying its subjective side.

In the context of the study of creativity, another problem can be singled out. It is theoretical substantiation of the concept of "creative skills of personality", the study of their structure, key indicators and optimal conditions for their formation. The development of creativity in the structure of professional competence of medical student plays a special role as long as an effective response to the non-standard professional situation and ability to solve complex problems are particularly important for the professional development of a specialist.

To understand the regularities of development of creative abilities, it is important to pay attention to the issues of psychological support and psychological protection of a personality. This problem has interesting historical traditions. Polish authors use a number of synonymous concepts: hygiene of mental labour, technique of mental labour, technology of mental labour. The activity of the Library of Self-Study (Biblioteka Samokształcenia) presents a particular interest. It was here that Stefan Rudniański published a book with the eloquent name Technology of Mental Labour (hygiene, organization, methodology) [22]. The author's personality is particularly interesting. In 1887-1941, Stefan Rudniański (Salomon Rubinroth) was a student of the Warsaw Conservatoire, studied philosophy, psychology and pedagogy in Leipzig, a participant in Polish philosophical congresses. In 1932-1935, he taught

history, philosophy and technique of mental work at the Pedagogical Institute ZNP. Since 1939, he was a professor of philosophy at Lviv University. Interestingly, his son Jaroslaw Rudniański (1921-2008) was a specialist in questions of praxeology, author of a series of original books.

The concept of "technology" is combined by the author with such aspects as specificity, practicality, as well as time management, methodology of listening, discussions, reading, writing, creative work. Let us take into account the most important, in our opinion, conclusions. In the first chapter dedicated to the issues of hygienic self-organization, the author draws attention to the cyclicality of mental labour, when the mental elevation, desire is combined with apathy, depression, loss of faith in one's own strength. The author sees the reason for the inappropriate use of the brain's capabilities, unprepared for systematic work. It is important to pay attention to the differences between mental and physical work in the context of recreation. Inertial processes inherent in mental activity determine its work even when it seems to a person that they have stopped conscious mental activity. The hidden, unconscious activity of the brain is important for creativity and at the same time conceals the danger of overworking. The researcher pays attention to life rhythms, physical exercises, and sports. It is important to take into account individual characteristics and pace of reaction, rhythm of labour, time (morning, evening) of the day, day of the week, sleep.

Fatigue is considered in a separate paragraph. The role of warning signals among which pain, indifference, decrease in activity is emphasized. Failure to respond to these signals will cause chronic fatigue, which manifests itself in headaches, tremor, gesticulation, increased voice, changes in breathing. An important place in the author's system is the rational organization of activity, which is based on a technical self-organization (planning in time and space). For contemporary time-management experts, it would be interesting to compare their proposals with the ideas of 1933. First of all, those, who expect the appropriate mood or inspiration to perform something, is lost in the chaotic accumulation of materials, postpones everything for tomorrow, allows others to take their time, are treated ironically. Time management involves taking into account biological characteristics, rational organization of life, taking into account the specifics, pace of work, individual characteristics, stability, and standardization of labour.

Similar analytical proposals were substantiated by A. Zalkind in the 1920-30th. Research paper "Intellectual work" is a kind of generalization of the given problem. The author offers recommendations on hygiene and rationalization of mental activity. In case of overwork, there is a need for restructuring in the mental work system, rest between different activities, full sleep. It is important to set the limit of fatigue. A tired brain is characterized by excessive agitation that is mistakenly perceived as readiness for effective work. Such "training", typical for ignorant people, is called by A. Zalkind a murderous thing for the brain, the cause of pathological changes [23].

In pedagogical science and practice, a separate branch of pedagogy with an eloquent name pedeutology is singled out. Specialists' attention will be attracted by the criteria of the "person of success" and "person of defeat". Furthermore, it is worthwhile to highlight a chapter devoted to stress issues and professional burnout. The emphasis is given to the problems of emotional burnout, depersonalization, and a reduction in the sense of personal achievement.

An attempt to single out the symptoms of professional burnout deserves particular attention. Five groups of symptoms are distinguished: affective, cognitive, somatic, behavioural, and motivational. These five groups, in turn, are divided into three subgroups according to individual, interpersonal, organizational aspect.

For example, cognitive symptoms on an individual level manifest themselves in hopelessness, powerlessness, pocrucie osacrenia, feeling of defeat, low self-esteem, concentration on oneself, feelings of guilt, thoughts about suicide, memory problems. Affective symptoms at the organizational level are manifested in cynicism, loss of respect for employees and leadership [24].

Particular interest among teachers will be caused by a system of stress situations management. On the basis of seven aspects of stress (relationships between people, emotional reactions, cognitive responses, physical manifestations, reactions due to the implementation of tasks, stress caused by the organization) there are suggested definite methods of assistance. For example, in order to overcome stressful situations caused by the implementation of tasks, it is suggested: to define priorities and set a detailed planning, to transfer part of the responsibilities to other people, to rationally use the time [24].

Let us consider individual examples of specific forms and methods of work aimed at developing the creative abilities of students. During an introductory lecture, we suggest for the students of pedagogical specialties to complete the text that belongs to L. Kostenko: A strange man is walking around the forest // He keeps looking around, rustling in the autumn leaves // Unwrapping the grass // Picking over the frost on the moss // I ask him: What are you looking for?

Students' answers cannot but surprise with their imagination: mushrooms, happiness, calmness, health, destiny, love ... But how joyful it is to find out among the answers the correct completion of the text: "The man replies – Myself".

Creative tasks for future teachers are of particular significance. On May 18, 2020, we will celebrate the 100 anniversary since the birth of St. John Paul II. While working at the Bronislaw Markevich State Technical and Economic School (summer semester, 2018), we traditionally suggested that students prepare problematic questions that allow us to assess logic, creativity, and understanding of the essence of the problem. Let us name a few examples: "Is wisdom a simplicity?", "What problems was John Paul II most disturbed with and whose interests did he care for?", "What did John Paul II teach us?", "What influence does John Paul II have on the history of Poland and the world?".

At the exam on the history of pedagogy, we have offered a kind of project "Gifts for St. John Paul II". Students' suggestions can be divided into three interrelated groups. The first group is general proposals: care for the faith, church,

homeland, being a patriot, more attention to the issues of religion ... The second group involves the observance of the principles of St. John Paul II in family and everyday life: conscious motherhood, less hatred in relationships between people, greater interest of parents in their own children ... The third group consists of interesting suggestions of a personal character: a common prayer, song and poetry contests, a contest "A family is strong with God's help", contest of projects on religious subjects, a journey to the favourite places of St. John Paul II, performing his favourite works, the solemn academy, lighting candles, creating a foundation for children, helping the poor ...

By the way, such a technique helps to put into practice our motto: "There are no uninteresting lectures, seminars, practical classes, credits, examinations. There are only uninteresting ...".

In conclusion, we would like to offer to the readers a quote from the work of the popular Ukrainian writer Myroslav Dochynets: "Let the productive creation accompany you until the last day. Do not stop doing what you can do and know how to do – neither with the retirement, nor with the old age, nor due to any other reasons and circumstances ... The creator supports those who create" [25].

CONCLUSIONS

For the retrospective assessment of the problem of creative activity, it is advisable to take into account the achievements of Christianity. For example, summing up the elements of the system of intellectual education in the pedagogy of religion (based on the Bible), one can distinguish a number of important ideas: 1. God as the creator (in the Latin Language God – Creator) endues a man with reason. 2. Education for light and the world. 3. Self-improvement as a goal. 4. The significance of the questions. 5. Overcoming despair. 6. Significance of wisdom. 7. Clarity and simplicity. 8. Laconic, accurate answers to the challenges. 9. Proverbs 10. Significance of the word, the combination of the word with the light. 11. Native language. 12. Ability to teach.

Modern pedagogy of higher education pays insufficient attention to the possibility of folk didactics. Ukrainian scientist, academician M. H. Stelmakhovych, having thoroughly analysed the possibilities of folk pedagogy at various stages of human development, noted: "We talked about the use of folk didactics in a modern general secondary school, but it is equally important to higher education institutions. Certainly, this concerns primarily pedagogical educational establishments. The study of pedagogy, history of pedagogy, subject methodologies in pedagogical colleges and universities would be incomplete if the teachers of these subjects did not draw attention of future teachers to the achievements of folk pedagogy and the possibilities of using folk pedagogical wisdom in the educational work of a modern school" [26].

The conclusion of I. P. Pidlasyi is important as well. The scientist proves that taking into account the realities of the present is essential as "in a pragmatic world of market economy, where wealth and career become the main values of the youth, nobody wants to spend a minute or a penny of money on the unnecessary "learning subjects" that does not provide with anything. Productive technology highlights the main, gives the necessary, projects success and guarantees quality, and therefore becomes the most demanded in the popular folk school" [15].

The analysis of available books on andragogy allows us to consider how to improve their structure. In our opinion, first of all, it is necessary to differentiate the monographic level and the textbook itself that in the style of the material outlined, the content, the system of questions would be useful for both, a teacher and an adult who by self-improvement would like to perfect their professional level, to solve the problems of interpersonal relations, conflicts, upbringing of children, increase the level of readiness for challenges of everyday life.

On the basis of the study of domestic and foreign experience, long-term cooperation with post-graduate students and teachers, we propose the following author structure of the textbook on andragogy, which is prepared for publication: the system of basic terminological concepts (man, individual, personality, regularity, system, development, education, upbringing, andragogy); regularities of personal development; health as a psychological and pedagogical problem; the system of personal self-development; psychology of success; psychology of defeat; development of creative abilities; psychological culture of a professional; rational use of time as a prerequisite for competence development; pedagogical aspects of life; regularities of successful management; challenges of the 21st century and personality; prospects for the development of andragogy.

Chaos in the system of pedagogical terminology immediately results in the problem of preparing for the publication of a new generation of pedagogical dictionaries. Communication with teachers makes it possible to conclude that even when defining a system of basic concepts (a person, individual, personality, development, education, upbringing, creativity), they give their own various definitions, which for the most part have nothing to do with scientific principles.

The task of comparative studies is to summarize the experience of past years, which is characteristic of different countries. It is no coincidence that the foreign educational establishments return the modernized method of projects, supporting schemes (mind maps) that have caused so many discussions in Ukraine, have long and successfully been used in the elite schools of England. There is also a need for a rapid response system for modern projects participation. Failure of Ukraine to participate in the PISA program until 2018 was a mistake.

Foreign specialists have developed a big industry of training videos devoted to the education of people from preschool to old age. Together with books, they become the basis of the pedagogical tools of the new generation.

Unfortunately, modern psychology and pedagogy do not pay attention to the conclusions of the philosopher P. Chaadayev, who asserted that a person always uses a certain standard in the measurement process. In case of measuring

human properties, there is no standard; the brain is forced to measure itself. This leads to methodological errors and the eternal predominance of expert groups over control in dissertation research.

Taking into account the dynamics of updating information, the need to promptly respond to the challenges of the present time, it is expedient to use the benefits of peer review and, with the help of electronic means, offer a wider range of author's results (a lecture we have delivered over six months ago was reviewed by more than thirteen thousand Facebook users).

Following the principles of innovation and anti-criticism, we will have the opportunity to structure indefinite volume of information. This will also be facilitated by pedagogical personology, a peculiar human-centeredness, based on human development from the prenatal period to old age and death. As soon as the authors are able to investigate the regularities of development of educational systems and personality development, science will approach the solution of the main tasks.

Science is approaching the solution of the tasks giving the authors the ability to explore the patterns of development of educational systems and personality.

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ORCID and contributionship:
Anatolii V. Vykhrushch: 0000-0002-1982-0768 [A,D,F]
Tetiana I. Khvalyboha: 0000-0003-2160-4535 [E,F]
Nadiya O. Fedchyshyn: 0000-0002-0909-4424 [B D, F]
Mariya A. Bagriy: 0000-0002-3506-9900 [B, E]
Larysa Ya. Fedoniuk 0000-0003-4910-6888 [B, E]
Hanna M. Protsyk 0000-0003-0928-636X [C, D]
Solomiia I. Hnatyshyn: 0000-0003-0021-0879 [B,D,]

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CORRESPONDING AUTHOR
Larysa Ya.Fedoniuk
Ternopil State Medical University
Maidan Voli, 1, 46001, Ternopil, Ukraine
tel: +380977008085
e-mail: Fedonyuk22Larisa@gmail.com

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