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**NAUKI SPOŁECZNE I HUMANISTYCZNE**

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**Valentyna Kovalchyk**

## **BUILDING FUTURE TEACHER'S VALUE-MOTIVATIONAL COMPETENCES.**

### **Summary**

The Author's purpose in this article is to review the problem of building future teacher's value-motivational competences. The results of the assessment of the first-year teacher education students' current status in terms of the positive motivation for a teaching profession, a system of ideas, and values required for teaching activities are reported herein. Specific details are hereby given in respect of the step-by-step building of the investigated competence in the course of study in universities and colleges.

**Keywords:** professional training of future teachers, future teacher's value-motivational competence, teaching forms, methods and technologies.

### **Introduction**

The formation of a highly cultured personality being distinctive in the important human values is known to be the main task of pedagogy. For this purpose, the underdevelopment of the value aspect of the individual consciousness might trigger a crisis of culture, human spirituality, and society itself. The teacher stands in as an active subject, value holder, and example to follow as well. Therefore, the formation of a teacher's personality and his worldview, as well as building a spiritual environment and value-motivational competences are the important components of the professional training of future teachers.

### **Purpose, scope, and research method**

The following theoretical research methods have been used for the purpose of the study: analysis, generalization, and systematization of the data from scientific information sources for determining the essence of the future teacher's value-motivational competences; methods of an empirical study of the first-year teacher education students' current status in terms of

investigated competence maturity. The pedagogical experiment was also run to build such competence in future teachers while studying in university or college.

### **Results and discussion**

Two approaches are existing by convention in the domestic pedagogics to identify the essence of the professional competence, i.e. the first one – through the structural elements of the professional activities and the second one – through an integration of the multitude of competences typical of the specialist. The *Professional competence* concept is defined as the ability of an individual to carry out professional activities based upon gained professional competences being beneficial for the development of the creative potential of the individual, professional self-development and self-improvement [Antonova O.E, Maslak L.P., 2011, p. 103.]

As part of the study of the problem of *building future teachers' professional competence*, we are going to focus on the disclosure of the specific details of building value-motivational competence. The above is a component of professional competence.

Value-motivational competence includes the formation of the future teachers' professional and personal interests and needs, positive motivation for choosing an occupation, value-based studying orientations connected with the understanding specific future professional activities depending on the education system, comprehension of a teacher role and mission in the society, as well as ability to choose the target and conceptual settings for his actions and behavior to mold own professional strategy and improve personal professional strengths.

K. Albukhanova-Slavskaya defines the life strategy of an individual as an integral characteristic described as the ability to combine individual characteristics, status, and age dependable capabilities, as well as own demands with the requirements of society and the wider public [Abul Khanova-Slavskaya K.A., 1991, p.35]. Each person has his vision of the world and his vision of professional activities. The individual monopolizes the overall picture of the professional activity and transforms it into his pattern of the world. T. Prokhorenko notes that a strategy is an integrative characteristic of the life path; a way of conscious planning and construction of a person's own life through the gradual formation of his future [Prokhorenko T.H., 2014, p. 224]. This is of special importance for young people who are just in the state of formation of a professional strategy.

Following the analysis of the modern researchers' scientific and pedagogical studies of the issues related to the investigation of specific details of the professional training of the future teachers, as well as aspects, whereupon the choice of occupation is dependable (O. Antonova, S. Vitvytska, O. Dubaseniuk, I. Ziazyun, O. Khomych, and others.) and based on good

pedagogical practice, a reasonable testimony may be made of that the formation of the future teacher personal strategy is conditioned by a number of the external (the image of a favorite teacher, job prestige, university or college experience, unique features of the school, which he studied in, micro-environmental effects, etc.) and internal (individual mental traits, self-esteem, level of demands, good academic performance, etc.) factors. The impact of these factors has either an enhancing or restrictive effect on the formation and implementation of the teacher's professional strategy. Building value-motivational competence of the future teacher is dependable upon the aforesaid factors. Such an impact is adjusted and/or varied due to the purposeful, specially arranged, and professionally-oriented interaction between the teachers and students (intending professionals) in the course of professional training for the future job.

In order to investigate the problem of building value-motivational competence of a future teacher, the diagnostic assessment was performed with the involvement of the first-year students (*Secondary Education - History* and *Secondary education - Ukrainian language*) of the Ivan Franko State University of Zhytomyr, Mykhailo Kotsyubynsky State University of Vinnytsia, Pavlo Tychyna State Teacher's University of Uman and A. Makarenko State Teacher's University of Sumy [Kovalchuk V.A., 2016, p.296-302]. 292 students were involved in the experimental trial: 310 people were assigned to the reference group, while 345 – to the experimental one.

Determining the maturity level of the value-motivational competence was done based upon different methods, i.e. K. Thomas test (adapted by N. Hrishyna) for identifying typical individual styles and responses to conflict situations; Teacher's orientation structure identification method (by V. Semychenko); Value-based orientation identification method (by I. Senin); Self-assessment and professional and pedagogical motivation assessment method (adapted by M. Fetyskin). The chosen methods make it possible to check the types of motives to act, which the future teachers may have got formed, as well as define their orientation (on themselves, on those around them). We chose to go with consideration of some results thereof.

It is assumed by the Thomas method (adapted by N. Hrishyna) to use a two-dimensional model of conflict management, of which the *cooperation* related to the respecting by a man of interests of other people involved, and *assertiveness*, for which concentration on the self-interest is distinctive, are considered to be the main components. Therefore, with these two measurements, the researcher identifies five ways (styles) to manage conflicts, i.e. *Challenge* (contest, competition) - desire to observe own interests at the expense (or to the injury) of others; *Adaptation* - sacrificing own interests for the sake of others; *Compromise* – an agreement based on mutual concessions; proposing an option that will provide for settling the

controversies in the conflict; *Avoidance* - the intent for disengagement from the situation (no trend of achieving own goals, cooperation); *Cooperation* – focusing by parties to the situation on interaction for achieving appropriate results, alternative solutions aimed at satisfying the mutual interests of both parties [Semychenko V.A. , 2004, p.218-228].

The social, professional, and individual importance of conflicts can differ significantly. As a rule, the conflict is a result of different basic values of a man, his worldview, etc. Keep in mind that conflict situations of various types and complexity levels arise daily in the ordinary course of teacher's activities. In such a case his ability to choose the proper and pedagogically reasonable strategy for settling such conflicts is just a quality that substantiates his professionalism and teaching excellence. Results of choosing by the students of the style for settlement of conflict are given in Table 1 below [Kovalchuk V.A., 2016, p.296-302].

Table 1. Conflict settlement pattern [by styles]

Style \ Group	Challenge, Adaptive skills (%)	Adaptation, Adaptive skills (%)	Compromise, Adaptive skills (%)	Avoidance, Adaptive skills (%)	Cooperation, Adaptive skills (%)
RG	140(45.2%)	22 (7.0%)	67 (21.6%)	16 (5.2%)	65 (21%)
EG	152(44.1%)	25 (7.2%)	77 (22.3%)	22 (6.4%)	69 (20%)

Following the above results got by the applied method it is evident that most of the first-year students in both reference (140 / 45.2%) and experimental (44.1%) group is mainly focused on the *competition*, struggling for satisfying their interests at the expense of others. This is due to the fact that students have no professionally-oriented motivation and values formed yet. It is assumed that no professional motives are conscious of them and predominate in the structure of the general motivational syndrome at the beginning of the study in the university or college. At the same time, it should be noted that over one-third of students in both reference (42.6%) and experimental (42.3%) groups do prefer either *compromise* or *cooperation* in solving difficult situations. Keep in mind that such a position is fundamental for a teacher's professional activity as it is expressive of a humanistic approach to interaction with others.

People are used to fulfilling their desires and achieve own agenda in different spheres of life, thus expressing their orientation. Therefore, it was important to determine a degree of significance of each of them for the first-year students – future teachers. Following on from the first-year student polling data it is fair to say that the *studies and education* are top-of-mind (21.3% (RG), 21.8% (EG) - high level, 51% (RG), 50.1% (EG) - medium level). The next was *interest* (interest (21.9% (RG), 20.6% (EG) - high level; 49.4% (RG), 49.6% (EG) - medium level). The *professional life* (16.5% (RG), 18.8% - high level, 47.4% (RG), and 46.7% (EG) –

medium level) was ranked third by the students accordingly. This is due to the fact that no future teacher during his first year identifies himself with the future professional life, but is guided rather by interests. Achievements as a terminal value demonstrated a high level among the respondents.

Following the results of analysis of assessment by the students of the importance of family and social life, it is definite that at the beginning of studying in university or college they attach more significance to the social one (22.6% of students) and 21.4% - high level, 48% of respondents (RG), 49.3% - intermediate level, 29.4% of students (RG) and 29.3% of students (EG) - low level). It means that students have a strong focus on active community involvement and student life, while the certainty of making a family, influence of parents and relatives on important decisions is somewhat lower.

It should be emphasized on the peculiarity established during the process of analyzing the results of the applied method, whereby it was found that there is no direct dependence between the levels of evaluation of different indicators by one student. It means that the student, for example, may give prominence to a high level of professional life and at the same time a low level of maintaining personal individuality; or a high level of interest and a low level of professional life. This phenomenon, in our opinion, can be explained by the fact that students have no steady personal attitude and life philosophy currently established. Personal and professional strategy, which is based upon a value-motivational construct, is finally formed during professional training through the influence of disciplines, teacher authority, educational process organization, and developmental environment in university or college.

For the purpose of detailed study of the maturity level of the professional values and motivation for teaching activities, a survey was conducted according to the method adapted by M. Fetyskyn [*Fetyskyn N.P., Kozlov V.V., Manuilov H.M., 2002, p.78-79*]. Purpose of the method: study of different degrees of maturity of professional and pedagogical motivation; professional needs; functional interest in studying specific details of pedagogical activities; curious approach to study of teaching processes, phenomena; ostentatious interest; episodic curiosity; and indifferent attitude. Development of the said indicators defines accordingly the motivation level, i.e. high, medium and low.

Therefore, the analysis of the above results gives reason to believe that professional and pedagogical motivation of the first-year students is formed at the medium level; more than half of the students in the RG (52.3%) and EG (56.8%) demonstrate an interest in studying pedagogical activities; concern themselves with the pedagogical literature, wish to participate in pedagogical workshops, conferences, etc. However, these manifestations are not sustained

and not constant; it often refers to the ostentatious interest (depending on the teacher's requirements). Only 11.3% of the RG students and 11.0% of EG have a high level of professional and pedagogical motivation, which is descriptive of the future teachers' awareness of choosing an occupation, sustained interest, and curiosity in studying its specific features, as well as the need for self-educative activities aimed at expanding professionally-oriented knowledge.

Apart from the abovementioned standard methods, we've used a method of writing the reflection composition *A school, which I would send my child to study* in order to determine the maturity level of the components of the future teachers' specific pedagogical competence in carrying out teaching activities in the context of the educational system variability. The content analysis was applied to assess student works. The following units of analysis were approved: 1) defining the purpose and objectives of a school; 2) school educational system structure; 3) school uniqueness; 4) school developmental environment; 5) requirements to teachers; 6) interaction, team relations; 7) schoolwork forms and methods; 8) modeled school graduate; 9) school logistics, maintenance, and supply.

Results of content analysis obtained after the first survey demonstrated that the purpose and objectives of a school were clearly defined in the student works (219 – in RG and 233 - in EG); understanding of the essence and educational system structure: in 171 (RG) and 169 (EG) works; creation of developmental environment: in 91 (RG) and 97 (EG) works; system of relations, humanistic focus and pedagogical reasonability thereof: in 108 (RG) and 111 (EG) works. The need for effective school logistics, maintenance, and supply system was reported almost in all works (298 - in reference and 337 – in the experimental group). Particular attention was paid to the teachers' requirements in the works. All students laid emphasis on the necessity of teachers' high competence in working with students. However, insofar as it regards school model development, no importance of orientation and determining the type thereof was mentioned by students. Almost all works describe the generalized model of the school without specifying the originality and specific details. In consideration of the above, we have no reason to believe that at the beginning of study students have poor awareness of understanding the specific details of the school education systems and their uniqueness. Moreover, their understanding of the specific teacher job in the context of educational system variability is recognized to be insufficient.

Following on from the assessment of orientation of the individual when choosing a strategy at achieving activity goals, we've identified professionally important personal traits: resoluteness, perseverance, ability to set goals, humanistic orientation in achieving them, etc.

The results of a study of the diagnosed goal-achieving strategies [Fetyskyn N.P., Kozlov V.V., Manuilov H.M., 2002, p.321-322] showed that a passive strategy to achieve goals is peculiar to 11.6% of the RG and 12.5% of the EG students. Such a goal-achieving strategy type is characterized by wariness, uncertainty in choosing own philosophy or attitude, and partial social privacy, which are considered to be a disadvantage in terms of future professional activities. An active-rigid goal-achieving strategy (hypertrophied commitment to supremacy, excessive lobby to achieve goals, demonstrative self-presentation, high-level criticism of others, and low-level self-criticism) was chosen by 16.5% of the RG and 17.4% of the EG students. About 40.3% of the RG and 40.0% of the EG students indicated that they drift toward an active-plastic goal-achieving strategy, which is characterized by a combination of the moderate lobby with the communicative *diplomacy*, adequacy of goals and ways to achieve them, compromise ability, and confidence in the professional and activity sphere. A significant part of students, i.e. 31.6% of the RG and 30.1% of the EG, remained undecided in respect of the outlined goal-achieving strategies, i.e. they are inherent with a mixed strategy, with no prevalence of any of them.

Following on from results of the applied method it is fair to say that the first-year students neither have completely mature professional goal commitment, perseverance, and humanistic orientation in achieving set goals, nor they are able to define professional and life values, appraise properly actions and behavior of others in different situations.

Therefore, the generalized results of the first-year student diagnosing survey showed that the value-motivational competence, which is expressed through the balance of professional and personal interests, socially significant orientation in the arrangement for teaching and education of students, positive motivation for educational and professional activities; humanistic values in professional activities of students from both reference and experimental group are formed with low and medium levels. Students are known to have mostly developed cognitive motives aimed at the result of the educational process, but not building professional competence. At the beginning of the study, they do not yet identify themselves with the future profession; they do not have a specific understanding of the place of job, where they plan to be employed.

With the view of the above, there is a need to develop a step-by-step process of building appropriate competence with reasonable substantiation of the choice of modern teaching forms and technologies. There are three stages of such competence-building process: adaptive professional, local professional, and systemic professional.

The adaptive professional stage assumes learning by the students of psychological and pedagogical disciplines, in particular adoption of theoretical provisions on educational systems, its typology, stages, and specific operation, including formation based on the above of professionally important value-based orientations, motives for gaining required knowledge, skills and qualities. The said stage is extended for three semesters (years I-II).

According to the above, the following tasks were set at this professional training stage: forming the subjectivity of the future teacher; developing professionally significant values and motives for the adoption of the basics of the professional activity, promoting adoption and development of the integrative psychological and pedagogical knowledge of the essence and specific details of a teacher's professional activity in the context of different educational systems.

Adoption of the educational information during lectures, search by own means, and presentation of the additional professionally-oriented information, as well as research and learning of the personal traits, are considered to be the basis of educational and cognitive activities of future students. Therefore, at this stage the technologies are used, whereby the subjectivity of future teachers is revealed for the purpose of building professional competence of the specialist (classical lecture and tutorial session with the use of the audiovisual technical means; small group working technology); project technology; portfolio technology, educational differentiation and individualization technology whatsoever).

Let's explore a specific illustrative example. Course: *Pedagogy*, subcourse *General basics*, Subject: *Profession of a teacher in modern society*. The semantic aspect of the subject concerned involves clarification of the main categories and concepts of professional activity of a teacher; creation of students' initial positive attitude to the study and development of the personal potential for performing the social role and basic functions of a teacher; disclosure of the specific teacher's activities in different secondary schools; social requirements to a teacher; and developing the need for self-learning and self-education among students as future specialists. It means that the adopted information is mediated by the student reflective activity to build the value-motivational, object, as well as self-knowing and self-development competences. For this purpose, a lecturer can use the forms and methods assumed by the technologies mentioned herein.

Educational differentiation and individualization technology. With this technology, you can use exercises with different levels of complexity (analytical, constructive, and creative) and reflective exercises (learning of personality traits, potential, predictive self-development, etc.).

Such tasks will promote adequate understanding of the student's potential, perception, and understanding of the student's personality, as well as specific details of pedagogical activities.

Analytical level: performing such tasks as - *Define, Insert missing words, Complete sentences*, etc. Dedicated theoretical provisions are chosen as the content of the said exercises. These may include the essence of key concepts, i.e. educator, teacher; lecturer, tutor; specific pedagogical activities; teacher job profile diagram, self-education; self-learning, professional self-development, etc.

Constructive level: performing such tasks as - *Explain and substantiate the statement of an outstanding educator, Fill in the table with data on identifying and characterization of the components of a particular pedagogical phenomenon, process, etc.* To perform this level of tasks, you can choose such pedagogical phenomena as pedagogical activities, pedagogical excellence, personal traits of an educator, strengths and weaknesses of pedagogical activities of a teacher, specific teacher's work depending upon the place of job (in different secondary schools), etc.

Creative level: performing such tasks as - *Make a sample of the teacher's commandments, Write an essay on the topic: My favorite teacher*, etc. Tasks of this level are aimed at revealing future teachers' vision of the model and image of an ideal teacher and focus on the positive things.

The following reflective exercises are of significant importance too. They include a) exercises for a description of own personality, whereby students shall conduct self-assessment of existing character traits, appearance, behavior and communication style, i.e. *What am I, My portrait, How others see me*; b) exercises aimed at assessing own personality and opportunities for self-development: *I am real and I am ideal, Obstacles to self-actualization, I am a future teacher*; c) exercises for a description of portraits of unknown people, schools whatsoever: *Use the photo to describe the character of the student, Use the photo to describe the uniqueness of the school*, etc. It should be noted that students at this stage of study are often faced with certain difficulties, i.e. fears about the inability to perform individual professionally-oriented tasks; mental stumbling blockages of public speaking, lack of self-trust, etc. To overcome them, the training exercises are proposed together with the use of reference diagrams, tables, and presentations. Alternation of written and oral exercises is recommended.

Classical lecture and tutorial session with the use of the audiovisual technical means. For example, the use of fragmental video situations showing different teacher's behavior and communication styles is preferable during problem-developmental lectures: problem lecture, dialog-formatted lecture, and visualization (presentation) lecture. The cases may include both

well-known (Sh. Amionashvili, O. Zkharenko) and ordinary teachers (records made during teaching practice). In the course of such a lecture, the effect of student presence in the conditions of the professional environment is provided. The educational information adopted during such lectures will contribute to awareness of the specific professional environment, the relationship between the own personal traits of the future teacher, and required professionally important qualities defined based upon appropriate job profile diagram.

Use of the portfolio technology is of particular importance for building the professional competence of future teachers. Polish researchers (Joanna Szymczak, Ewa Filipiak) consider portfolio to be a technique that allows the author to monitor his development; a tool that encourages self-reflection and critical reflection; experience and situations required to evaluate one's work; it is a kind of representation of the professional development; it is a constantly growing collection of non-random authentic documents being externalized thereby (through making available to the creator and others), development of its author competences; it is an educational opportunity to create conditions for the student, whereunder he would be able to find the causes of difficulties and errors in professional activities and choose strategies to avoid them in the future [*Joanna Szymczak, 2015, p.193-196*]. Familiarizing with this technology by the first-year students together with starting the creation of own portfolio will promote building the value-motivational competence of future teachers.

The local professional stage involves building competences in the course of lectures and tutorial sessions, in the process of self-educational activities, and during continuous pedagogical practice. The said stage is extended for years II and III (the main period of learning such educational teaching disciplines (courses) as Pedagogy, History of Pedagogy). These changes are conditioned by a possibility of practical approval of gained professionally-oriented knowledge and skills in the actual conditions of a particular school during continuous teaching practice.

It is worth reminding that professional training during this period is known to be educational in form and professional in content and focus. It means that the potential of such courses as Pedagogy, namely Theory of Education, Didactics, and School Management subcourses makes it possible to design a conditional professional environment of various comprehensive secondary schools. Moreover, the educational environment of a university or college is oriented for the assignment of future teachers with various types of both educational and extracurricular activities. Future teachers shall be involved during university years by lecturers of different high school departments, tutors, and student public organizations for holding various individual, group, and mass events, i.e. participation in competitions,

Olympiads, holidays, excursions, exhibitions, youth projects, and student campaigns, etc. The result is an extension of knowledge, development of professionally important and personal values, character attributes, abilities, and skills, as well as gaining necessary personal and social experience, which is of special importance for the work of a teacher.

Keep also in mind that the implementation of teaching technologies at this stage is conditioned by the arrangement of a simulated educational quasi-professional model of future teachers' activities. Acting within the scope of duties prescribed, the teachers have the task to model situations that will reproduce the content, dynamics, and specific details of the professional activity of a teacher in the realistic context of educational system variability. This is how students will be able to actively learn, transform the professional environment and build thereafter on that basis the professional competence, in particular specific teaching competence, which is a component of the above. Through the adoption of the educational information and practicing pedagogical tasks, the student brings it into correlation with his knowledge, practical actions, and behavior, i.e. assigns a specific personal meaning to it. This is very important for the formation of the future teacher's professional strategy.

Searching and research, project and small group working technology, as well as technology for solving pedagogical problems, are considered to be the main components of building the value-motivational competence at this stage. It should be noted that the hereby recommended teaching technologies must be implemented at all training stages. However, with reference to the specific training processes in universities or colleges we have to identify the main, i.e. more frequently used ones, which problem-solving effectiveness is much higher.

Depending upon education level (Bachelor or Master degree, year IV or V), building the professional competence of the future teacher is considered to be completed at the systemic professional stage. The said stage involves the comprehensive application of the theoretical fundamentals of the future teacher's basic knowledge in the course of an active (off-job) pedagogical practice in the capacity of the subject teacher or form master in the secondary school in the context of various educational systems. According to O. Dubaseniuk, the relationship between experience and competence can be considered from the standpoint of general (experience) and partial (competence), either more global or specifically particular, but, nevertheless, of similar social and personal significance for any growing man [*Dubaseniuk O.A., 2013, p. 96-97*]. Professional experience may be indicative of a high level of skills; a way of personal self-actualization; a certain result of the individual self-development; a guarantee of personal and social success; resources and simultaneously the basis of personal, professional, and social development. Accordingly, competence, on the contrary – the potential, ability, or

window of opportunity, which is rather in the *I can* position, than experience as an accomplished act, that *has occurred*. We consider the *small group* working technology, educational differentiation and individualization technology, searching and research technology, technology for solving pedagogical problems, and portfolio technology to be the determinative at the said stage. It is important to pay attention to the fact that building the specific pedagogical competence of future teachers will require at this time to use work in a "small group", where each student will have an opportunity to identify a holistic model of teaching activities: from setting goals to implementation of their achievement results. The components of the generalized theoretical model of the pedagogical activity structure include goals, motives, patterns, object-to-subject relationship, conditions, means, results, and corrections [Semychenko V.A., 2004, p.296]. Filling these structural components with appropriate content, in consideration of integration thereof, will help to solve various professionally-oriented tasks aimed at building the value-motivational of future teachers. See the possible examples of learning activities below:

- ✓ Working out and performing micro-research during teaching practice in a particular school, followed by a review of the results at a reporting conference, which includes the study and analysis of the structure of pedagogical activities of a teacher.

- ✓ *Teacher of the School of the Future* Project.

- ✓ Roundtable discussions dedicated to *Individual features of teacher's professional activity, Professional strategy of a teacher, etc.*

- ✓ Participation in the *Young Teacher's Club*, established in each secondary school.

At this stage of the training process, the future teacher's attitude and his activities in terms of content and forms of work will have become professional. The student's professional motives are consolidated and the process of personal subjectivity formation is completed; the emerging professional subjectivity becomes mainly apparent, while the professional strategy is finally defined with completing the professional competence-building process. The student resolves on the desired place of job in consideration of his needs, motives, opportunities, and actual social situation in the local education system.

### **Conclusion**

Our experimental research in the field of building future students' value-motivational competence is a complex step-by-step process, which is conditioned by the needs and requirements of the educational practice, constant changes in the young student training system,

and upgrading of the professional-pedagogical education. It is assumed that the said approach to building this particular professional competence of future teachers might be more effective and advantageous. Having regard to the current circumstances, further researches in the field of building professional competence of future teachers may relate to research problems of selecting teaching technologies and testing their effectiveness in distance learning mode.

### Bibliography

1. Abulkhanova-Slavskaya K.A. *Stratehii zhyzni / Life strategies* [text], M.: Mysl, 1991 – p. 299 – p.35
2. Antonova O.E, Maslak L.P. *Profesiina pedahohichna osvita: kompetentnistnyi pidkhid / Professional pedagogical education: competence approach*, Monograph edited by O. Dubaseniuk. – Zhytomyr, published by I. Franko State University of Zhytomyr, 2011. – p. 81-109
3. Dubaseniuk O.A. *Andrahohichni pryncypy navchannia doroslykh kriz pryзму sotsialno-osobystistnoho dosvidu ta kompetentnosti / Andrahohy: Adult learning principles through a prism of socio-personal experience and competence // Adult learning: theory, experience, and prospects: Collection of research papers and articles / [Editorial board members: L. Lukianoiva (Chairman) and others] Teacher's and Adult Learning Institute of the NAES of Ukraine – Luhansk. Publishing firm Knowledge, 2013.- Vol. 7 – 360 p./ p. 89-100].*
4. Fetyskyn N.P., Kozlov V.V., Manuilov H.M. *Sotsio-psykhologicheskaya diagnostika razvitiya lichnosti i malykh grup / Socio-psychological diagnosing of personal development and small groups.* - M. published by Psychotherapy Institute, 2002. – p. 488 p.321-322
5. Joanna Szymczak *(Współ)bycie / (współ) stawanie się refleksyjnym nauczycielem i uczniem. Portfolio and feedback as a strategy of kurefleksyjności // Learning developing in everyday education według Lwa S. Wygotskiego From theory to change in practice.* – Bydgoszcz, 2015.– p. 193-196 Electronic resource - access mode [https://www.ukw.edu.pl/download/44436/MONOGRAFIA\\_ACK.pdf](https://www.ukw.edu.pl/download/44436/MONOGRAFIA_ACK.pdf)
6. Kovalchuk V.A. *Profesiina pidhotovka maibutnykh uchyteliv do roboty v umovakh variatynosti osvitno-vykhovnykh system: teoriia, metodyka, praktyka / Professional training of future teachers for work in the context of educational system variability: theory, methods, and practice*, Monograph. – Zhytomyr, published by I. Franko State University of Zhytomyr, 2016. – p. 461 – p.296-302

7. Prokhorenko T.H. Stratehii profesiinonii samorealizatsii molodi v suchasnomu suspilstvi / Strategies for young men's professional self-realization in modern society / T.H. Prokhorenko / Bulletin of the National University Yaroslav the Wise Law Academy of Ukraine. - 2014 – Nr. 2 (21). – p. 222–228
8. Semychenko V. A. Psihologiya pedagogichnoi diyalnosti / Psychology of pedagogical activities), Kyiv: Vyshcha shkola, 2004, 335 – p. 218-228

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## **CATEGORIAL ANALYSIS OF THE “HIGHER EDUCATIONAL INSTITUTION EDUCATOR’S PROFESSIONAL HEALTH” CONCEPT.**

### **Summary**

The article reviews the problem of professional health of an educator of higher educational institution (HEI) on the basis of the analysis of corresponding legal framework of Ukraine in the field of healthcare as a promising area for the formation of health-preserving competence of young people. Emphasis is placed on the cultural and historical experience of mankind, the social practice of treatment from the standpoint of antiquity (health as internal coherence); adaptive (health as an individual's adaptation to the environment); anthropocentric (health as a multifaceted self-realization – the disclosure of the creative and spiritual potential of the individual) standards of healthcare. Theoretical analysis of basic categories / concepts of the actualized problem ("health", "professional health") in the context of philosophical-sociological, medical-biological, psychological-pedagogical discourses is carried out. The specifics of professional and pedagogical activity of an educator of a higher educational institution are determined. The consequences that reduce the effectiveness of his/her professional duties are outlined. Theoretical conclusions on the content characteristics of the professional health of the HEI educator are summarized. From the standpoint of multicomponent health characteristics, the author's interpretation of professional health of the educators of higher educational institutions as a complex characteristic of health in specific conditions of professional activity characterized by adaptation to the influence of professional environment, which is provided with sufficient functional reserves of the organism, manifested through the state of physical, mental, social and spiritual well-being and focused on the

organization of the healthcare process of higher education. The perspective directions of investigating the problem of healthcare of HEI educators are given.

**Keywords:** health, professional health, educator of the higher educational institutions.

### **Introduction**

The priority area of public policy, as referred to in the Law of Ukraine "Fundamentals of Legislation of Ukraine on Healthcare" (1992, version 2020), the National Strategy for Physical Activity in Ukraine until 2025 "Physical activity – healthy way of life – a healthy nation", the standards and regulators for the implementation of national health programs in all spheres of human life and activity are established. In this context, the problem of professional health of educators is relevant as an important way to ensure the effective performance of their professional duties and their successful life.

Therefore, particular attention is given to the problem of preservation and strengthening of professional health of pedagogical workers of higher educational institutions as their professional activity provides formation of health-preserving competence of youth, lays foundations of health of the future nation in the context of reforming the education sector, as stated in the Laws of Ukraine "On Education" (2017), "On Higher Education" (2014, version 2021), "On Physical Culture and Sports" (1994, version 2018), "National Doctrine development of education and physical culture and sports "(2004, edition 2018).

The study of the professional health of HEI educators showed that at the stage of intensive changes in the field of indicators of education of their physical and mental health, as well as social well-being, comparative characteristics of subjective and objective signs of the quality of life do not match the requirements, which are set in the particular society, for the effective performance of their professional tasks, creative development and self-improvement.

### **Subject, object and research methods**

Peculiarities of the professional health of an educator are studied by T. Andriuschenko, V. Bobrytska, B. Dolynskiy, L. Svashchuk, H. Meshko, N. Myskova and other; provision for conditions for health-preservation of educators is reviewed by M. Lekholetova, V. Moiceciuk, O. Shukatka; V. Hryban dedicated his research to the analysis of the impact of the profession on the health of pedagogical workers.

However, the theory and practice of the problem of healthcare of educators needs to clarify the categorical apparatus in the newly-introduced health policy. Therefore, the *aim* of the article in the context of the described problem is a theoretical analysis of the essence

(content characteristics) of the concept of professional health of the educators of higher educational institutions.

In this context, the *subject* of the study defines the categorical apparatus in the field of healthcare in general and the health of the educators in particular.

To conduct a categorical analysis of the actualized problem and outline the relationship between its basic concepts, we use a number of *theoretical methods* of scientific research, including: analysis, synthesis, comparison, generalization.

### Research results

Essential, according to the discussed issue, is the concept of "health", which is generally considered as a state of a living organism in which all organs are able to perform their vital functions well [Здоров'я // Вікіпедія: <https://uk.wikipedia.org/wiki/%D0%97%D0%B4%D0%BE%D1%80%D0%BE%D0%B2%27%D1%8F>]. The understanding of health as the highest value of life has a thousand-year tradition. It is known that the relative value of health increases with the growth of human well-being, and the issues of preserving and strengthening human health have taken place in all periods of formation and development of (Hippocrates, Democritus, Heraclitus, Plato, Aristotle, Galen, Quintilian, Ya. A. Komensky, J. Locke, J.-J. Rousseau, K. Helvetius, A. Disterweg, M. Pirohov, K. Ushinsky, V. Bekhterev, P. Lesgaft).

Evaluation of the problem of health through the prism of cultural and historical experience of mankind and social practice of rehabilitation is carried out by O. Vasyleva and F. Filatov, who allowed to identify a number of the most common standards of health: ancient (health as internal coherence); adaptive (health as an individual's adaptation to the environment); anthropocentric (health as a multifaceted self-realization – the disclosure of the creative and spiritual potential of the individual). According to the authors of this approach, this lets us consider the problem of health in three important aspects, namely: the unity of physical and spiritual nature of man (ancient standard); the importance of the body's adaptive resources to maintain health in the environment (adaptation standard); and self-realization and self-improvement as a guarantee of human health (anthropocentric standard) (О. Васильєва, Ф. Филатов, 2001).

We believe that the selected standards should not be distributed in a hierarchical sequence, for all aspects that determine the priorities of each of them have a significant impact on human health. Only a comprehensive consideration of structured scientific and social ideas about health provides a complete understanding of the actual problem and allows to holistically

characterize the phenomenon of health.

In the context of different discourses of health, a number of key characteristics of a particular phenomenon are distinguished and considered in a number of areas: *philosophical-sociological*, which defines it as an integral indicator of culture and social policy of society (S. Omelchenko, L. Suschenko and other.); *medical-biological*, which considers it as hygienic behavior and is based on scientifically-sound sanitary and hygienic (M. Amosov, H. Tsarehorodtsev, Yu. Lisitsyn, D. Izutkin and other); *psychological-pedagogical*, which determines the leading role of motivational and value attitudes, consciousness, behavior and value-oriented activities of an individual in order to create their socio-cultural macro- and microenvironment of life (V. Bobrytska, Yu. Boichuk, M. Honcharenko, V. Horaschuk, V. Orzekhovska and other).

At the present stage of defining an individual and his/her life as a goal and measuring the development of civilization, the importance of health and its semantic characteristics are studied by scientists of various profiles: philosophers (O. Ісакова, 2017), medical workers (I. Holovanova, O. Dmytrenko, H. Dranyk, N. Liakhova, Zh. Minchenko, T. Sharbenko and other), lawyers (Yu. Voronenko, O. Hryshchenko, O. Klymenko, Ya. Radysh, I. Seniuta and other), economists (T. Kamenska), psychologists (B. Ananiev, M. Rubinshtein), pedagogists (T. Andriushchenko, V. Bobrytska, B. Dolynskiy, L. Ivashchuk, H. Meshko, N. Muskova and other).

On the one hand, the interpretation of a selected concept within a particular industry reflects its *subject* component. On the other hand, scientists are increasingly concluding that the most effective is the idea of health as an *integrated system* designed to perform the basic function of the viability of the organism, human life in society as a whole, the integral quality of full harmonious human existence in all its dimensions and aspects (E. Vainer, V. Voitenko, H. Nikiforov, V. Petrenko, 2017).

Thus, I. Brekhman (И. Брехман, 1990), who was one of the first to offer an informational and psychological interpretation of the concept, considers health not as just only the absence of disease, but physical, social and psychological harmony of an individual, which includes friendly relations with other people, nature and him/herself, as well as the human ability to maintain resistance to abrupt changes in quantitative and qualitative parameters of the sensory system, verbal capabilities and structural integrity of the body within the age norms.

Consistent with Brekhman’s conclusions is the definition of health in the preamble to the Charter of the World Health Organization (WHO), which is derived as a state of complete physical, mental and social well-being, and not just the absence of disease, illness or physical

defects [Здоров'я // Вікіпедія // <https://uk.wikipedia.org/wiki/%D0%97%D0%B4%D0%BE%D1%80%D0%BE%D0%B2%27%D1%8F> ].

In general, health is characterized by a number of features (Н. Сидорчук), 2017:

- normal functioning of the organism at all levels of its organization: the organism as a whole with its organs, histological, cellular and genetic structures;
- normal flow of typical physiological and biochemical processes that contribute to the expression and reproduction of the necessary biological functions;
- ability to fully perform basic social functions, participation in social activities and socially useful work;
- dynamic balance of the organism and its functions as well as environmental factors;
- the ability of the organism to adapt to the conditions of existence in a constantly changing environment (i.e., adaptation);
- the ability to maintain normal and versatile vital activity; keeping the living foundation of the body intact;
- the absence of disease, sickness or painful changes, i.e. the optimal functioning of the body in the absence of signs of disease or any disorder;
- complete physical, spiritual, mental and social well-being, harmonious development of physical and spiritual forces of an organism, the principle of its unity, self-regulation and harmonious interaction.

Composition of the concept of "professional health of educators of higher education" will be carried out by considering health as a viable (dynamic) integrated (multidimensional – physical, social, psychological components) holistic system (organism), the way of life which provides a high level of quality of life and its the most possible duration, considering the *given factors and conditions*.

The scientific substantiation of the concept of "*professional health*" will be carried out on the basis of a professional approach as a certain system-forming factor in the study of the phenomenon of health. In this sense, its application allows not only to scientifically substantiate the concept of "health" within a particular field, sphere of human existence (science, culture, economics, ecology, ethics, education, politics, etc.), but also to determine its specificity within the implementation of specific professional activities.

The concept of "*professional*" is consistent with the concepts of profession - (Latin *professio* – officially specified occupation, specialty) a type of work (occupation) of a person with a set of special theoretical knowledge and practical skills obtained as a result of special

training, experience and activity (Н. Сидорчук, 2017). According to these ideas, the main features of the concept of "professional health" is the consideration of the same phenomenon of health in the plane of a particular professional activity, the study of the relationship between the performance of professional duties and the dynamics of health.

Thus, in the context of an individual's professional activity in a particular area of human existence, the concept of "professional health" is distinguished, which is interpreted by scientists as an integral component of general health, which combines all its main aspects. (V. Bodrov, E. Viner, E. Zeier, M. Korolchuk, V. Krainiuk, R. Krychevskyi, A. Markova, L. Sushchenko and other); complex characteristics of human health in specific conditions of professional activity (R. Beresovska, O. Dovhopolova, A. Maklakov, H. Nikiforov, V. Podliashanyk, V. Ponomarenko, B. Smirnov and other.).

Therefore, taken into consideration context given, professional health includes the characterization of the functional state of the human body by physical and mental indicators to assess its ability to meet requirements of certain professional activity and ability to perform duties with high efficiency and duration over a period of life, as well as endurance to adverse factors that accompany this activity. The concept of professional health integrates the complex relationship of a person with the professional environment and it serves as a measure of the coherence of social needs and human capabilities in the implementation of professional activities.

Under the following conditions, professional health, which is characterized by adaptation to the influence of factors of the professional environment, is provided with a sufficient functional reserve of the body to perform a certain type of professional activity, and is manifested as a state of physical, mental, social and spiritual well-being. This kind of health is one of the factors of professional suitability, an important condition for effective work and an indicator of the "quality" of professional life.

We agree with the conclusions of A. H. Maklakov (A. Маклаков, 1996), who identifies the professional health as a certain level of characteristics of a healthy individual, which meets the professional requirements and ensures high efficiency and productivity.

The peculiarity of the "professional health" category in the context of the reviewed problem is its clearly expressed professional *pedagogical* orientation, thus this issue was and is subject of many scientists' researches. Moreover, in the post-Soviet space the active study of the problems of professional health of educators, conditions and mechanisms of professional maladaptation in them dates back to the beginning of the XX century (Т. Майтак): the opening of a labor laboratory in Pavlograd in order to develop healthcare tools (V. Bekhteriev, 1918 y.);

the creation of the Central institute of labor (A. Hastev, 1920 y.); study of the impact of occupations on the life expectancy and physical and mental health of the subject of professional activity (I. Mechnikov). The mentioned initiatives replenished with scientific achievements of V. Kashkadamova, S. Rubinstein, M. Rybnykova, which prove that the teaching profession can be classified as a "risk group" with low physical and mental health.

Thus, pedagogical activity, as one of the professional type, is carried out in the field of "individual-individual" interaction. This gives grounds to attribute it to the so-called helper professions and determines its features associated with a number of functional responsibilities (Н. Бещук-Венгерська, 2015; Т. Зайчикова, 2005; Н. Перегончук, 2011): the situation of constant communication; intensity of loads while preparing for the implementation of the educational process in the specialty; the need to master innovative forms, methods, teaching aids; use of modern information and communication technologies; intensive interpersonal communication with different groups of people (students, colleagues, parents, administration, etc.), providing them with support and assistance; personal improvement of pedagogical space, emotional loadings; the need to make decisions related to human life; personal responsibility for the decisions made, including the physical and mental health of students, reproduction and development of intellectual and cultural potential of society as a whole.

Scientific studies dedicated to the analysis of the educator showed that high emotional tension, potential affectogenicity, the presence of a large number of risk and stress factors that constantly accompany him/her at work, negatively affect the well-being, efficiency and quality of his/her professional activity (N. Kuzmina, A. Markova, L. Mitina, V. Slastonin and other). This point of view confirms the opinion about the consideration of professional health as a component of the spiritual and moral foundations of professional activity. A physically and mentally healthy educator has favorable conditions both for his/her own spiritual development and for the development of his/her students/pupils. Thus, professional health is one of the factors of professional suitability, an important requirement for work efficiency and an indicator of the "quality" of professional life.

The professional activity of HEI educators is carried out in accordance with a clearly defined system of functional responsibilities, which are determined by the specifics of professionally oriented tasks that correspond to the profession, including the features of specific educational components, namely: time, emotional load, etc. In terms of our research of the issue of the health of the educators, we do not single out a specific occupation of teachers, taking as a basis for the final author's conclusions N. Nazaruk's results of dissertation research (Н. Назарук, 2007), and the state of professional health.

As a result of categorical analysis of the problem of healthcare, taking into account the subject of our research, the concept of professional health of educators of higher educational institutions is considered as a complex characteristic of health in specific professional conditions, which is characterized by adaptation to the influence of professional environment. type of professional activity, exploits functional reserves of the body, and is manifested through the state of physical, mental, social and spiritual well-being and focused on the organization of the health process of higher education.

### **Conclusions**

The presented analysis of the conceptual space is the basis for further research of a number of issues in the field of health of educators of higher educational institutions, including the following:

1. improvement of the structure of professional health of an educator of higher education and the content of its components in the context of modern requirements for the formation of life-preserving skills of a healthy lifestyle concept;
2. development of modern forms and methods of healthcare focused on the integrated use of active social and natural environments;
3. substantiation of the health potential of recreational human resources as a modern means of preserving and strengthening their professional health.
4. forecasting and scientific substantiation of the system organization of the healthcare process of pedagogical workers of higher educational institutions.

### **Bibliography**

1. Бещук-Венгерська Н. В. *Профілактика синдрому професійного вигорання у педагогів: метод. посіб.*, [Prevention of burnout in teachers: handbook], 2015, 39 s.
2. Брехман И.И. *Валеология – наука о здоровье*, [Valeology – science about health], 1990, 206 s.
3. Васильева О. С., Филатов Ф. Р. *Психология здоровья человека* [Psychology of a healthy individual], 2001, 352 s.
4. *Загальна теорія здоров'я та здоров'язбереження*: кол. монограф. / за заг. ред. проф. Ю. Д. Бойчука, [General theory of health and health preservation]. [Ed.] Boichuk Yu. D., 2017, 488 s.
5. Зайчикова Т. В. *Соціально-психологічні детермінанти синдрому «професійного вигорання» у вчителів*: Дис... канд. психол. наук: 19.00.05, [Socio-psychological determinants of the syndrome of "professional burnout" in teachers], 2005, 391 s.

6. *Здоров'я*. URL: Retrieved from <https://uk.wikipedia.org/wiki/%D0%97%D0%B4%D0%BE%D1%80%D0%BE%D0%B2%27%D1%8F> (дата звернення: 18.03.2021).
7. Майтак Т. М. *Професійне здоров'я педагога*, "Badania naukowe. Teoria i praktyka / Научные исследования. Теория и практика", [Professional health of an educator]. URL: [http://xn--e1aajfpcds8ay4h.com.ua/files/image/konf%208/sb8\\_3\\_3\\_.pdf](http://xn--e1aajfpcds8ay4h.com.ua/files/image/konf%208/sb8_3_3_.pdf) (дата звернення: 17.03.2021).
8. Маклаков А.Г. *Основы психологического обеспечения профессионального здоровья военнослужащих* : дисс. ... доктора психол. наук, [Fundamentals of psychological support for professional health of military personnel. Manuscript for obtaining the degree of Doctor of Psychological Sciences. Specialty: 19.00.03.], 1996, 392 s.
9. Назарук Н.В. *Психологічні засоби профілактики «професійного вигорання» вчителя* : дис. на здобуття наук. ступеня канд. психол. наук : спец. 19.00.07 «Педагогічна та вікова психологія», [Psychological means of prevention of "professional burnout" of the teacher: Manuscript for obtaining the degree of PhD in Psychology, Specialty: 19.00.07], 2007, 205 s.
10. Перегончук Н. В. *«Професійне вигорання» як фактор розвитку особистості педагога* : дис. ... канд. психол. наук : 19.00.07, ["Professional upbringing" as a factor of educator's personality development: manuscript for obtaining the degree of PhD in Psychology, Specialty: 19.00.07], 2011, 219 s.
11. Сидорчук Н. Г. *Фізична культура і психологічний тренінг*: [навч. посіб], [Physical culture and psychological training: textbook], 2017, 104 s.

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**PROJECT METHOD AS A MEANS OF IMPLEMENTATION OF  
PRACTICAL-ORIENTED APPROACH IN FORMATION OF  
PROFESSIONAL COMPETENCE OF THE FUTURE TEACHER.**

**Summary**

The article points out the need for changes in the understanding of the social role of teachers who is capable of involving students in joint activities that will promote their socialization and allow them to better master the social experience and get ready for widespread use of teaching methods based on cooperation. This, in turn, highlights the need to improve the training of future teachers through the excessive introduction of practice-oriented approach: the implementation of the educational process in the context of future professional activity by reproducing it in the forms and methods of educational activities, which implies modeling of typical psychological and pedagogical situations representing specific professional problems that require solution from behalf of the students engaged. The possibilities and conditions of application of practice-oriented teaching methods, in particular project technology, in the professional training of the future teacher are analyzed. Based on the preliminary research, the concepts of "project", "project method", "project technology", "project approach" are defined. It is concluded that there are differences in the understanding of these categories by European, American and domestic researchers, as well as scientists and teachers-practitioners. The typology of projects is characterized, which, according to the dominant activity, is divided into research, search-based, game, practice-oriented and creative. The main stages of students' work on the project tasks are determined. Options for using the project method in training sessions on "Pedagogy" (section "Didactics") are proposed.

**Keywords:** practice-oriented approach, project, educational project, project method, project technology, project approach.

### **Introduction**

The conceptual framework of the New Ukrainian School (NUS) [11] states that a modern school needs a new kind of teacher who is able to involve students in joint activities that will promote their socialization and allow them to more successfully master the social experience. Also, the teacher and the students should be ready for widespread use and application of teaching methods based on cooperation (games, projects, social, research, experiments, group tasks, etc.) [11]. In this regard, the role of the teacher expands its boundaries and includes the responsibilities and duties of a coach, facilitator, tutor, moderator in the individual educational trajectory of a child. Thus, as noted by I. A. Ziaziun: "a modern teacher becomes an organizer of independent educational knowledge of students,... director of their interaction with educational material, with each other and with the teacher" [5, p. 56].

Therefore, the process and content of training of teachers requires significant changes. The higher pedagogical school faces the task of transition to the formation of professionals who combine deep fundamental theoretical knowledge and corresponding practical experience [5]. However, there is a number of issues concerning the teacher training, in particular its excessive "theorizing", for the cycle of professional training often prevails over the practical and methodological ones. At the same time, there is an insufficient connection between the theoretical and practical elements of the learning process: the theory has no impact on practical activities, moreover, practical activities do not correspond to the realities of professional activity [2]. Scientists emphasize that the university practice is dominated by the understanding of the discipline in the sense of "science in abbreviated form"\"basics of science", which leads to improper recognition of the role of the methodological aspect of the discipline intended for teaching [2].

One of the possible means of strengthening the professional orientation of future teachers in higher education is a *practice-oriented approach* that can ensure maximum approximation to future professional activity already during training.

### **Aim, subject and research methods**

The problem of practice-oriented training of the specialist and its components was dealt with by such scientists as I. Dychkivska, I. Zymnia, I. ziaziun, S. Lytvynenko, N. Nychkalo, I. Pidlasyi, A. Khutorskyi and other. This approach has also been describen in the works of

N. Basalaieva, O. Birchenko, A. Verbytskyi, N. Zhytnik, O. Kotykova, H. Kovalchuk, M. Kollehaieva, S. Kopiava, N. Matiushenko, I. Palchykova, T. Pushkariova and other. All these researchers believe that the system of practice-oriented training of future teachers will be successful if it is provided with appropriate productive technology [6]. However, despite the significant practical potential of scientific and theoretical research on the methodological principles of professional training of future teachers, it remains traditional in terms of forms and methods of teaching, technologies and approaches [3, p. 1].

Thus, we consider the organizational conditions of practice-oriented training of future teachers as a *subject*, and the *aim* of the presented article is to substantiate the effectiveness of *forms* and *methods* of teaching aimed at its implementation, in particular the method of projects.

We use a number of *theoretical methods* of scientific research, including: analysis, synthesis, comparison, generalization in order to analyze the problem and outline ways to solve it.

### **Research results**

Within the framework of the latest world research in the field of pedagogy, a practice-oriented approach to teacher training is considered as a methodological concept of forming their professional pedagogical culture, as the main means of professionalization of future teachers aimed at integrating theoretical and practical components of professional training. The object of knowledge in the practice-oriented approach is the specific *practice* of the teacher in the process of teaching and educating the child [7]. This is the only way to make a semantic reorientation from "declared" (What?) to "procedural" (What for? And why?) knowledge by creating situations that mimic professional problems [7]. Thus, N. F. Koriakovtseva notes that practice-oriented learning is based on the acquisition of subject knowledge in the process of practical activities and can be considered as a process of joint activities of student and teacher, which results in the student's ability to look at the knowledge system through the prism of practical experience, gaining creative independence and intellectual incentives necessary for professional self-realization [6].

The essence of the practice-oriented approach is to implement the educational process in the context of future professional activity by reproducing in the forms and methods of educational activities of students real psychological and pedagogical situations, solving specific professional problems. The practice-oriented approach allows to model the subject content of professional activity, provides conditions of transformation of educational activity of the

student into professional activity of the expert. Reproduction of real professional situations in the academic and practical phase of teacher training is the main characteristic of the practice-oriented approach. At the same time, the ratio of theoretical, practical and methodological information is redistributed in the sphere of formation of professional competence of future teachers [2].

The main characteristics of the practice-oriented approach in teacher training is that its subject from the very beginning is placed in an activity position, which is ensured by the introduction of professionally-oriented forms of educational process and provides not only practical orientation of individual disciplines but also the content of the whole teacher training program in HEI.

It is important to ensure the receipt of the subject product not in the form of a finished lecture, but through independent activity. Therefore, the teacher must encourage the student by performing the tasks aiming at achieving the important individual and social-meaningful results in the form of professional skills. Only by mastering a set of practical actions the future teacher may acquire his/her social and professional certainty [7].

In recent years the training of future teachers involves a large number of promising interactive forms and methods of teaching that meet modern socio-historical and socio-economic requirements for education, training and development of young people, especially his/her personality.

Within the development of one of the complex topics of the Department of Pedagogy, Professional Education and Management of Educational Institutions of Zhytomyr Ivan Franko State University "Formation of professional competence of future teachers in the context of European integration" together with PhD student Yu. Zhyliaeva [1; 4] the research was conducted in order to determine the conditions of application of the project method in the process of training of future teachers, which, in our opinion, occupies a prominent place among modern practice-oriented technologies. Therefore, the possibilities of its application in the professional training of future teachers have been considered and described.

Despite the rather long history of the development of the project method, in our opinion, its potential is far from exhausted, for its importance is especially relevant in the conditions of the reform of Ukrainian school, which provides a new role of teacher - "not as a sole mentor and source of knowledge, but as a coach, facilitator, tutor, moderator of the individual educational trajectory of the child" [9].

We believe that educational process with the project method fully implemented will allow the teacher to exploit his/her altered and newly-designed functions. The educator organizes free activities for students related to the real world around him/her, acts in various roles as: the *initiator* of the proposed project topics and a *participant* in choosing the best topics offered by students; as a *consultant*, for he/she initiates questions, reflective evaluation, self-assessment, sets various situations, organizes access to information resources; as an *enthusiast* – inspires and motivates students to achieve the goal; as a *facilitator* – he/she not only provides students with knowledge and skills that can be practically exploited in project activities, but also conducts evaluation, as well as points out the students' shortcomings or mistakes; as an *observer*, for he/she monitors the psychological and pedagogical effect of project activities, i.e. the formation of personal qualities, reflection, self-esteem, the ability to make informed choices, to comprehend its consequences; as a *specialist* – the educator has knowledge and skills in relevant areas; as a *leader* (particularly in matters of time planning); as a *coordinator* of the group process and an *expert* who analyzed the results of the project work [12, p. 8].

Let's describe in more detail the essence of the project method and the prospects of its application in practice-oriented professional training of future teachers.

First of all, it should be noted that researchers outline the conceptual field of the reviewed issue, where such concepts as "project method", "project training", "project technology" etc. are used at the same time. Analysis of the scientific and pedagogical literature (S. I. Horlytska, E. Collings, M. Nolla, Yu. Olkers, Ye. S. Polat, V. M. Sternberg, K. DuCharm and other) allows to state the discrepancy between the understanding of these categories by European, American and domestic researchers, as well as scientists and teachers-practitioners. It has been found that the term "project method" is interpreted as a technology or as a teaching method.

Thus, review of the scientific literature allows us to state that most scientists understand the *project* as: 1) a structural unit of the organization of educational activities, which combines the form and content of education; 2) educational task, for the solution of which pupils (students) are involved in project activity.

Such modern researchers as M. Yu. Bukharkina, V. V. Huzeieva, Ye. S. Polat, A. V. Khutorskyi, I. S. Chechel consider project a set of actions that is specially organized by the teacher and independently performed by students, which provides independence in decision making, freedom of choice and excessive variability and creativity applied to the final result of the entire activity.

The *project method* is interpreted as a way to achieve a didactic goal by elaborating a problem, which should end with a practical result in a certain way. This is the organization of learning, in which students acquire knowledge and skills in the process of planning and performing practical tasks – the projects.

The basis of the project method is a *project approach*, which is identified as a system of requirements for the organization and content of educational activities, which are characterized by relative freedom of students in choosing the content, final learning outcomes, forms of work and organization of educational activities.

*Project-based learning* is considered as an organizational form of learning, which is based on the *project approach*, and which consists in the setup of the educational process in which the student independently solves educational and cognitive tasks. Thus, the *educational project* is understood as the form of the organization of employment that provides complex character of activity of all its participants directed on reception of educational production for a certain period of time, from one lesson to several months [12, p. 6-7].

Accordingly, *project technology* is a system of goals, content and methods of organizing learning in project activities, which has a certain structure and comprehensive nature, motivates a student to achieve a conscious aim, and provides an active process interaction with educational material. The project method is a mandatory structural component of project technology [4, p. 8].

The application of the project method is based on taking into account such approaches to learning as personality-oriented, interactive, heuristic, problem-based, developmental, as well as modern technologies, including games, collective interaction, development of critical thinking, etc. (classification by V. M. Andreieva, V. V. Hryhorash) [8, p. 238]. Prospects for the application of the project method in the training of future teachers is based on the following features: the problematic nature of project tasks, practical orientation and productivity of training, activity-communicative organization of training; variability of methods, forms and means of teaching; possibility of designing individual achievements of students by students and teachers; research nature of educational activities, etc.

It should be noted that the traditional division of material of pedagogical cycle disciplines into theoretical blocks in terms of project activities needs to be revised in order to identify a set of issues and develop project tasks that will allow students to integrate knowledge of theoretical material from different disciplines of the pedagogical cycle and gain corresponding experience [4, p. 10]. Therefore, one of the conditions for the integration of the project method in the process of training of future teachers is the structuring of educational

material into problem blocks with a combination or, conversely, the division of traditional thematic blocks and further formulation of project tasks. Each problem block can contain several types of project tasks to provide an individual and differentiated approach based on the principles of professional orientation of learning, systemics, consistency, combination of theory with practice. Using the typology of Ye. S. Polat, Yu. M. Zhyliaeva in her study divides projects by dominant activity into the following categories: research- and search-based, games, practice-oriented and creative [10, p. 42]. Each of these types of projects in the context of the requirements for professional training of future teachers, taking into account their subject specialization, acquires its own features which are reflected in the project tasks [4, p. 10].

Thus, the structure of a research project is similar to the structure of scientific research, and the expected result implied the following stages to be accomplished: systematization and verification of the data, formulation of conclusions, identification of new pedagogical problems, so the research project is appropriate to create and improve knowledge, skills and abilities for research.

The structure of the practice-oriented project (applied project) is carefully thought out, with a scenario of participants' activities and division of responsibilities. Applied projects are aimed at creating a specific product, which in the context of professional and pedagogical training of future teachers should reflect the realities of the teacher's work: regulatory and legal support (draft laws, regulations, state standards, etc.); material and technical base, which implies the creation of teaching aids; class management and designing the corresponding school documentation (characteristics of the student(s), long-term development plan of the pupil/student, class, etc.); scientific and methodical work – creation of manuals, methodical recommendations. Thus, applied projects take into account the features of the constructive and prognostic components of the content of teacher training.

The *game project* is promising field for the development of the communicative component of professional training of future teachers. The final result is the simulation of situations from the professional life of a teacher (pedagogical council/meeting, methodological association, class hour, educational event, etc.) or modeling the hypothetical situations related to educational processes (debate at the state level on the introduction of school uniforms; discussion of the principles of experimental private school creation; themed lesson "What would the lesson be like, if we did not inherit the legacy of Ya. A. Komensky?").

The structure of the *creative project* is outlined vaguely and develops according to the genre of the final result. The expected outcome in the context of pedagogical training should

correspond to the specifics of the future teacher's creativity. Thus, for the future teacher of foreign languages relevant projects aims at creating visual aids, films, reproducing the works of famous authors in a foreign language, creating a newspaper in a foreign language for younger students, explaining and simulating customs and traditions of celebration of the national holidays of the country of language origin.

The structure of the *introductory-oriented (search-based) project* requires preliminary planning, for its structure reflects the goals and objectives of the entire entity, including sources of information, foreseen results and their presentation. Its expected outcome is usually shaped as the publication and/or report. However, given the requirements to overcome excessive theorizing of the cycle of pedagogical disciplines, the introduction of problem-based and activity-based approaches to learning, the researcher does not consider it necessary to distinguish the search project as a separate type of projects alongside with the game, research and applied projects.

The choice of the type of project task according to the dominant activity in the project is determined by the content of professional training of the future teacher, the educational material available, individual features of the student and/or student group, as well as the current stage of formation of pedagogical knowledge.

In the modern lecture-seminar system of education, the organizational aspect of the application of the project method in the professional training of future teachers deserves special attention. Organizational forms of education in modern HEI (higher educational institution) include lectures, seminars, workshops, laboratory classes, consultations, independent work of students, etc. The choice and sequence of involvement of all these forms of training in the context of project activities is determined by the specifics of the project task, type of project itself, development of project-making (presenting) skills of students and the stage readiness of the project.

Researchers identify 9 stages of work on the project, which correspond to the following forms and methods of interaction:

- 1) formulation of the topic and setting goals of the project: report, conversation, mini-lecture;
- 2) discussion of options: conversation;
- 3) self-education: independent work;
- 4) making up the sequence of necessary actions – plan (determining the sources of information, methods of collecting and analyzing the data, determining the method of

presentation of results, establishing procedures and evaluation criteria, distribution of tasks among team members): seminar - "brainstorming", workshop;

5) research (search for information, solving current problems, accomplishing objectives): independent work, workshop, excursions, practical work, laboratory work, school practice;

6) generalizations and conclusions: seminar, consultation, independent work;

7) presentation or report: seminar;

8) analysis of successes and mistakes: conversation, consultation;

9) correction.

In general, the application of the project method contributes to the optimization of the process of professional training of future teachers, namely the implementation of activity-based, problem-based and technological approaches to the development of learning content.

For example, the following options for using the project method during the training sessions on "Pedagogy" (section "Didactics") can be offered: the study of the section "Didactics" involves students mastering the following thematic blocks: the essence of the learning process; the content of education in the modern school; methods and means of teaching; forms of organization of training; methodical work at school.

Project tasks offered to students are divided into 2 groups: *mini-projects*, the implementation of which is designed to assimilate information from one block of educational material, and *longitudinal* (long-term) *project* "Modern problems of didactics", which provides generalization of knowledge, skills and abilities of students from the entire section of "Didactics".

The project "Modern problems of didactics" is a *practice-oriented* project, which provides for the study of the course "Didactics" with an approach to the urgent problems of the modern society and the development of appropriate guidelines for future teachers. The following issues are offered for consideration by students: identification and training of gifted children; implementation of the principle of differentiation of education; development of new methods for students with special educational needs; early learning and mastering the foreign languages; implementation of the competence approach in teaching; implementation of interdisciplinary links in education.

While studying the theoretical material of the topic "The essence of the learning process" students are asked to clarify the terminology and conceptual apparatus of their own research. For example, students working on the project "Implementation of the principle of differentiation of education" should clarify the term "differentiation of education" and compare

it with the main categories of didactics, namely: analyze the role of learning differentiation in determining the purpose of learning; highlight the internal contradictions of the learning process, which determine the need for differentiation; analyze the impact of differentiation on the processes of teaching and learning; illustrate the impact of learning differentiation on the acquisition of knowledge, skills and abilities; demonstrate the conformity of differentiation to the principles of teaching in modern pedagogy, etc. The project task involves writing a substantiation for obtaining a grant for research and pedagogical investigation, where it is necessary to apply the acquired knowledge to justify the topic, object, subject, main tasks and formulate the expected results of the study.

While mastering the theoretical material on the topic "The content of education in the modern school" students are invited to consider the State Standards of Education, curriculum and subject syllabus; to analyze the problem of the project task, find its reflection in the state legal educational framework; to create the program of activity of experimental institution of general secondary education taking into account subjects under consideration.

Mastering topics "Methods and tools of training" and "Forms of training" is accompanied by an analysis of methods, tools and forms of training, a priority for solving the issues of project research. The result of students' project activities can be the creation of a poster-illustration of modern teaching methods with examples of their application in periodicals for teachers and drawing up a lesson plan-summary respectively.

After dealing with the theoretical material on the mentioned topics, students are offered to summarize the acquired knowledge, analyze modern pedagogical periodicals and make guidelines for teachers to solve the pedagogical problem of project research.

During the practical lesson on the topic "Methodical work at school" students conduct a role-playing game "Meeting of the methodical association", where they present the results of their research in the form of methodological recommendations for teachers of their specialization.

Thus, each practical lesson in the section "Didactics" is accompanied by a mini-project task, which, depending on the complexity and stage of development of project knowledge, corresponding skills and abilities is performed during the lesson under the guidance of a teacher, independently (during homework) or includes both stages. Therefore, students are involved in project activities aimed at performing all types of project tasks: research-based, game, practice-oriented and creative.

### **Conclusions**

It is experimentally proved that the use of project technology leads to an increase in the

number of students with medium and high levels of motivation for professional activity in experimental groups (EGs) (6.3% and 13%) compared with control groups (CGs) (1.4% and 3.2 %). The results of the formative stage of the experiment show a decrease in the number of students with a low level of motivation to study pedagogical disciplines (7.2% in EG compared to 28% in CG) and an increase in the acquisition of professional pedagogical knowledge, skills and abilities (0.85 and 0,83 in relative proportions) by students within EGs compared with CGs (0.68 and 0.66).

In general, the involvement of students in project activities helps to optimize the learning process, as well as prepares future teachers to apply the project method in their own professional activities. The use of interactive forms of learning improves relationships in the student group, develops activity, partnership and cooperation, and the authority of the teacher as a leader, communicator and active participant as the collective cognitive process grows. Thus, the project method has a high educational and developmental potential, and its application allows to create conditions for the realization of the creative potential of students and teachers, to combine theoretical knowledge with their practical application

## References

1. Antonova, O.Ye. (2016). *Praktyko-oriientovanyi pidkhid u formuvanni profesiinoi maisternosti maibutnoho vchytelia* [Practice-oriented approach to the formation of professional skills of the future teacher]. *Teoriia i praktyka profesiinoi maisternosti v umovakh tsilezhyttievoho navchannia: monohrafiia / za red. O.A. Dubaseniuk*. Zhytomyr: Vyd-vo Ruta, 262-285 [in Ukrainian].
2. Bobrakov, S. (2012). *Reformuvannia zmistu profesiinoi pidhotovky vchyteliv u VNZ Nimechchyny: praktyko-oriientovanyi pidkhid* [Reforming the content of teacher training in German universities: a practice-oriented approach]. *Porivnialna profesiina pedahohika, № 2*, 161-168 [in Ukrainian].
3. Dolhorukov, A. *Metod case-study kak sovremennaia tekhnolohyia professyonalno-oryentyrovannoho obucheniya* [Case-study method as a modern technology of professionally oriented training]. Retrieved from: [http://www.vshu.ru/lections.php?tab\\_id=3&a=info&id=2600](http://www.vshu.ru/lections.php?tab_id=3&a=info&id=2600) [in Russian].
4. Zhyliaieva, Yu.M. (2012). *Zastosuvannia metodu proektiv u profesiino-pedahohichnii pidhotovtsi maibutnikh uchyteliv inozemnykh mov* [Application of the project method in

- professional and pedagogical training of future teachers of foreign languages]. *Extended abstract of candidate's thesis*. Zhytomyr: ZhDU imeni I. Franka [in Ukrainian].
5. Ziaziun, I.A. (2000). *Intelektualno tvorchyi rozvytok osobystosti v umovakh neperervnoi osvity* [Intellectually creative development of personality in the conditions of continuous education]. *Neperervna profesiina osvita: problemy, poshuky, perspektyvy: monohrafiia / za red. I.A. Ziaziuna*. Kyiv: Vipol [in Ukrainian].
6. Koriakovtseva, N.F. (2010). *Teoriya obucheniya ynostrannym yazykam. Produktivnye obrazovatelnye tekhnolohyy: uchebnoe posobye dlia vuzov* [Theory of foreign language teaching. Productive educational technologies: a textbook for universities]. Moskva: Akademyia [in Russian].
7. Matiushenko, N.V. (2014). *Praktyko-oryentirovannaia podhotovka budushchikh uchyteliv humanitarnoho profylia sredstvamy produktivnykh tekhnolohiy* [Practice-oriented training of future teachers of the humanitarian profile by means of productive technologies]. *Nauka i osvita: Psykholohiia, № 5*, 242-248 [in Russian].
8. Andrieieva, V.M. & Hryhorash, V.V. (ed.). (2006). *Nastilna knyha pedahoha. Posibnyk dlia tykh, kto khoche buty vchyteliv-maistrom* [Teacher's handbook. A guide for those who want to be a master teacher]. Kharkiv: Vyd. hrupa „Osnova” [in Ukrainian].
9. Palshkova, I.O. (2008). *Praktyko-oriientovanyi pidkhid u formuvanni profesiino-pedahohichnoi kultury maibutnikh vchyteliv pochatkovykh klasiv: teoretyko-metodolohichnyi aspekt: monohrafiia* [Practice-oriented approach in the formation of professional and pedagogical culture of future primary school teachers: theoretical and methodological aspect: monograph]. Odesa [in Ukrainian].
10. Polat, E.S. (2003). *Metod proektov* [Project method]. *Metod proektov: nauch.-metod. sbornyk / pod obshch. red. M.A. Husakovskoho*. Mynsk: RYVSh BHU, vyp. 2, 39-48. (Seryia: *Sovremennye tekhnolohyy unyversytetskoho obrazovaniia*) [in Russian].
11. *Proekt: Nova shkola. Prostir osvitynikh mozhyvostei* [New school. The field of educational possibilities]. Retrieved from <http://mon.gov.ua/%D0%9D%D0%BE%D0%B2%D0%B8%D0%BD%D0%B8%202016/08/21/2016-08-17-3-.pdf> [in Ukrainian].
12. Samoilenko, N.B. (2008). *Pidhotovka vchyteliv humanitarnykh dystsyplin do zastosuvannia metodu proektiv u profesiinii diialnosti* [Preparation of teachers of humanities for application of a method of projects in professional activity]. *Extended abstract of candidate's thesis*. Kyiv [in Ukrainian].

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## **INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) AND THEIR ROLE IN THE TRAINING OF MEDICAL STUDENTS IN THE CONDITIONS OF DISTANCE LEARNING.**

### **Summary**

The article deals with the use of information and communication technologies in distance education. The development of modern information technologies has led to the new approaches to the organization of education, in which the teacher and the student are at a considerable distance from each other. The author highlights the component of the information and communication technologies use in the training of future physicians in terms of distance education.

**Keywords:** information and communication technologies, distance education, information and educational environment.

### **Relevance of the research**

Information and communication technologies currently affect all aspects of human life. Changes in working conditions, the development of information processing and exchange affect the latest teaching methods, approaches to learning, research and access to information and communication technologies. Distance education currently imposes new rules of teaching, and therefore the impact on medical education is unique, as the need for continuous training of medical students is urgent and traditionally requires practical training and physical presence.

This article defines the role of information and communication technologies (ICTs) in filling gaps and continuing education in health field, discusses various online collaboration tools and digital interaction, and the potential and relevant challenges of modernizing of health education and implementing ICTs in the long run.

### **The purpose of the study**

The purpose of the study: to reveal the benefits of using information and communication technologies in the planning and implementation of various forms of education in higher medical education.

### **Analysis of recent research and publications**

The problem of implementing ICT in the educational process and, at the same time, improving the efficiency of information technology will always be relevant. The continuity of the search for a solution to this problem is associated with the continuous improvement of information technology, so their rational and correct improvement will require constant efforts. This is confirmed by research and scientific works of scientists.

The importance and necessity of introducing IT into the educational process has been discussed for a long time by foreign scientists, but Ukrainian scientists are not lagging behind the trends set by the rapid growth of the percentage of distance learning in education. In particular, it is worth paying attention to the work of O. Shestopal, V. Bykov, O. Bondarenko, Ya. Bulakhova, V. Zabolotnyi, O. Pinchuk, G. Kozlakova, O. Mishchenko and others [1, p. 178].

### **Introduction of main material**

Information and communication technologies are something without which it is difficult to imagine almost every aspect of our lives. Perturbation of working conditions, increasing the amount of information and the need for its rapid processing stimulate changes in new teaching methods, approaches to them, affect research and access to information and communication technologies. The biggest challenge of recent times is distance learning, which is changing the way scientific and educational material is taught. Medical education has been hit the hardest by distance learning in recent times. The specifics of teaching medical students require constant training, practical training and physical presence. The Internet gives future professionals access to the latest cutting-edge research, and the use of interactive multimedia allows them to better absorb large amounts of information.

Using the pedagogical capabilities of the computer, you can significantly increase the effectiveness of basic aspects of educational activities and logical thinking. The role of information and communication technologies in the use of empirical teaching methods is especially important. The use of information and communication technologies allows to improve the quality of such types of mental activity of students as structuring and systematization, which belong to the logical organization of the assimilated material [2, p.38].

In order to intensify learning, along with the classical forms of education in higher educational institutions and in independent work of students software opportunities are increasingly used: textbooks, simulators, dictionaries, reference books, encyclopedias, video tutorials, libraries of electronic visual aids, topical computer games.

The very concept of information and communication technologies (ICT) should be understood as "A set of methods, tools and processes used to collect, process and disseminate information and use them in the scientific and cognitive sphere" [4, p. 113].

ICT affects all areas of human activity, but perhaps the greatest impact they have on education, because they open up opportunities for the introduction of completely new methods of teaching and learning. Thus, we can see the emergence of new models of learning through ICT:

- ✓ e-learning uses an information network - the Internet, intranet or extranet, in whole or in part and the purpose of this type of learning is: interaction between participants in the process, mastering the subject. Training is carried out with the help of Internet services, various educational platforms, interactive online boards.
- ✓ blended learning: refers to learning models that combine personal practice in the classroom with e-learning. For example, a teacher can teach in the classroom, as well as implement electronic means of information spreading (introduction of flash cards as homework on the Quizlet platform, or use the service for distance learning Wordwall, Google Forms to control the assimilation of material and feedback. communication with students, etc.) The use of computers in education was the beginning of a revolutionary transformation of traditional methods and technologies of teaching and education in general.

In order to effectively use the new opportunities provided by communication technologies (ICT), the following basic conditions must be met:

- Students and teachers should have sufficient access to digital technologies and the Internet at home, in the classroom and in all educational institutions.
- Teachers must have the appropriate knowledge and skills to use new digital tools and resources to help all students achieve high academic standards.

However, in the process of using ICT there are some difficulties: there is no methodological basis for their use and a methodology for developing ICT for education. This leads to the fact that the

teacher relies solely on their own experience and ability to select appropriate ways for the effective use of ICT [3, p. 42].

ICTs actively influence the process of teaching and educating students, as they modify the scheme of knowledge transfer, and, accordingly, teaching methods which we are accustomed to. Students can adjust the pace of work, which in turn opens the possibility of individual learning for everyone.

The decisive factor in the quality and successful use of ICT in the educational process is the willingness and ability of teachers to implement ICT in the educational process, to effectively use ICT tools and appropriate methods of their use.

According to the experience of ITE implementation, the effectiveness of ICT-based learning is significantly influenced by a specific type of educational institution (school, vocational or higher education institution, training center or virtual college, etc.), form and type of education, full-time or part-time, remote or stationary, basic or additional), etc.

The improvement of the information technology-based education system and the widespread introduction of ICT in the educational process have led to the emergence of virtual universities, an open education system and greater opportunities for the transfer of knowledge and information. Mainly, distance learning plays an important role in this process.

Distance learning is a form of distance education, when "delivery" of educational material and educational interaction between teacher and student are provided by modern technological electronic means. If the existing traditional system of education to some extent restricts access to vocational education, then distance education has no borders, it is for everyone and throughout life. [5]

Currently, distance education is developing most rapidly as a direction of the education system, both abroad and in Ukraine. In the context of society transformation, distance learning plays an important role in solving the problem of modernization of vocational education. This is a qualitatively new type of education, which is based on the principle of self-study of the student, as well as modern teaching methods, technical means and methods of information transfer. This type of education involves the organization of the educational process, in which the teacher and the student are not in a state of constant pedagogical interaction, and is an important organizational component of continuing education.

The ultimate goal of creating and developing a distance learning system is to provide students with equal educational opportunities. Improving the level of education is due to more active use of scientific and educational potential of leading universities and academies, which are leaders in industry training centers and other educational institutions.

In the network you can now find many options for already developed systems for distance education. Their use can be completely free, but at the same time there are systems that work on a commercial basis. In addition, some educational institutions develop individual, own learning management systems. However, many educational institutions prefer proven systems.

It should be noted that the use of ICT in the educational process contributes to:

- increasing the motivation of students to study;
- development of skills of independent work with educational material;
- increasing the effectiveness of training through its individualization.

Let's highlight some advantages of using ICT in the educational process:

- organization of cognitive activity by modeling;
- imitation of typical professional situations with the help of multimedia;
- application of the received knowledge in scientific researches;
- effective training of knowledge, skills and abilities;

The use of information technology in the educational process significantly increases the efficiency of learning by students.

### **Conclusions and prospects for further research**

The information search that occurs between a teacher and a student (or several teachers and a study group) in the distance learning process currently continues with the help of telecommunications and other means of new information technologies: some information goes from teacher to student and another from student to the teacher.

Exactly this factor creates the conditions for increasing interactivity in distance learning, taking into account the software of new information technologies. Distance learning is becoming more widespread in the system of vocational education, as it contributes to meeting the educational needs of society. Overall, the use of information and communication technologies is already becoming an integral part of the educational process. The introduction of ICT is associated with certain problems, which in the future require careful study, however, this is not due to their complexity, but to the constant and rapid development of technology.

### **References:**

1. Bykov V.Iu. Modeli orhanizatsiinykh system vidkrytoi osvity : monohrafiia / V.Iu. Bykov. – K. : Atika, 2010. – 684 s.// Models of organizational systems of open education: monograph / V. Bykov. - K: Atika, 2010. – 684 p.

2. Zabolotnyi V.F. Dydaktychni zasady zastosuvannya multymedia u formuvanni metodychnoi kompetentnosti maibutnikh uchyteliv fizyky : avtoref. dys. na zdobuttia nauk. stupenia dokt. ped. nauk : spets. 13.00.02 "Teoriia ta metodyka navchannia (fizyka)"/V.F. Zabolotnyi . – Kyiv. – 2010. – 38 s. // Zabolotny V. Didactic bases of application of multimedia in formation of methodical competence of future teachers of physics: author's ref. dis. for science. degree of Dc of. Science: special. 13.00.02 "Theory and methods of teaching (physics)" / VF Swampy. - Kyiv. - 2010. - 38 p.
3. Kozlakova H.O. Teoretychni i metodychni osnovy zastosuvannya informatsiinykh tekhnolohii u vyschii tekhnichnii osviti: Monohrafiia. – K. : IZMN, VIPOL, 2011. – 180 s. // Kozlakova G. Theoretical and methodical bases of application of information technologies in higher technical education: Monograph. - K.: IZMN, VIPOL, 2011. – 180 p.
5. Kruchynina H. A. Metodychna robota vykladacha v umovakh vykorystannia novykh informatsiinykh tekhnolohii navchannia / H. A. Kruchynina // Problemy teorii i praktyky v pidhotovtsi suchasnoho fakhivtsia. Mizhvuzivskyi zbirnyk naukovykh prats – 2003. - S. 126. 2. Nwosu, O. ICT in Education: A catalyst for effective use of information / O. Nwosu, E.F. Ogbomo // PNLA Quarterly [Electronic resource]. - 2011. - Mode of access: <http://unllib.unl.edu/LPP/PNLA%20Quarterly/nwosu-ogbomo75-4.pdf>
6. Aismontas B. B. Pro kompleksne naukovo-metodychne zabezpechennia navchalnoi dystsypliny [Elektronnyi resurs]. - 2002. - Rezhym dostupu: <http://www.childpsy.com/lib/articles/id/9587.php//> Aismontas B. About complex educational and methodical maintenance of educational discipline [E-source] – 2009.

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## **STANDARDIZATION OF ENVIRONMENTAL EFFICIENCY ASSESSMENT OF LAND USE MANAGEMENT.**

### **Summary**

The standardization of ecological efficiency assessment of land management, the environmental management system, the state statistical reporting on the quantitative accounting of lands are considered. Significant compliance of land cadastral accounting with the criteria of international standards was revealed.

**Słowa kluczowe:** environmental problem, land resources management, land resources, environmental efficiency assessment.

### **Introduction**

Recently, there is a growing of environmental problems in the use of land resources. The formation of effective land policy, as well as the definition of land management targets require clear regulations that would allow, using available information sources, to assess environmental impacts and quantify the environmental performance of economic entities - land users.

Environmental assessment of land use is part of the overall assessment of natural resources used by society to meet their own needs and create material goods. The need for it is caused by a significant intensification of anthropogenic impacts on the environment, which led to qualitative changes in the relationship between man and nature. In essence, the main task of ecological and economic assessment of land use should be to determine the level of compliance of the existing state of land use in relation to its ecologically and economically optimal state. This state, in turn, should be considered as a mode of land use, which will harmoniously combine environmental security and economic feasibility of land use.

Particular attention should be paid to the assessment of land resources in agricultural production, as sustainable development of this industry is impossible without a clear system of

accounting for material resources, labor and means of production, the amount of labor expended and paid, etc.

Assessment of land as the main means of agricultural production should be performed, firstly, on the basis of geographical determinism, which takes into account the natural and climatic heterogeneity of territories, and secondly, in-depth study of land quality, including their productive layer - soil.

Because evaluation assumes that there is a basis or criterion for evaluating, it is important to correctly identify the object and subject of the evaluation when solving this problem. However, it should be borne in mind that land in different spheres of production has a different function, and therefore the question arises as to which industry of material production this assessment should be performed.

The results of ecological efficiency assessment of land use will have the highest evidence if it is carried out in accordance with international standards in the field of environmental management.

**Problem statement in general and its connection with important scientific and practical tasks.** The environmental management system provides a structured process to achieve continuous improvement, the speed and scope of this process must be determined taking into account economic and other circumstances. It should also be borne in mind that the creation and implementation of an environmental management system does not in itself necessarily lead to an immediate reduction of the negative impact on the environment, but the integration of environmental assessment with the general administrative management system allows to implement environmental protection measures more effectively and to determine their effectiveness.

Assessment of environmental efficiency of land use requires sufficient, periodically updated information that comprehensively characterizes the state of land resources. The state land cadastre should be considered the main source of such information.

Thus, the land cadastre should be understood as a rather diverse scientific system, which contains information on the legal, economic and natural state of the land. As the final stage of the consistent study of various differences in land resources is the evaluation of soils and economic evaluation of land. At this stage, data are formed that combine reliable, due to objective natural and economic factors indicators, the use of which is necessary for environmentally safe land use. The quality and fertility of the soil are considered to be indicators that characterize the ecological and economic properties of the land and are influenced by both natural and anthropogenic factors.

When evaluating the land used in agricultural production in the ecological and economic aspect, it is necessary to take into account the whole set of properties that it is endowed with. The object of evaluation in a broad sense is land as a means of agricultural production. It should characterize the quality and value of land when using it in agriculture.

To meet the need for information on the state of land use, it is mandatory to take into account the land fund for all land users and lands, as well as the characteristics of agricultural lands in terms of qualitative differences in their soils. However, land cadastral information contains diverse characteristics for the study and assessment of land resources and productive forces on a national scale.

Modern researchers recognize the urgent need for information that characterizes the individual components of the environment and which is necessary for the implementation of environmentally friendly land use systems. In this regard, the relevance of studying the land valuation process from the point of view of determining and incorporating environmental content indicators into land valuation data can be considered unquestionable.

Summarizing the above, it should be noted that the study and assessment of land resources is an essential condition for learning about the ecosphere, the relevance and necessity of which is due primarily to the need to improve the rational use of agricultural land on the basis of environmentally friendly land use.

It is clear that the formation of land assessment data focused on environmentally safe land use should be concentrated in the land cadastre system and comprehensively characterize the available information, on the basis of which the environmental and economic assessment of land use.

Ecological and economic assessment of the use of agricultural land operates on certain principles of its implementation. That is, it presupposes the existence of certain scientific and legal principles, bases and rules, from which they do not deviate in its implementation. The main principles according to which the land cadastral information on ecological and economic assessment of lands is formed should be:

- legality, ie compliance with the provisions of existing regulations in the field of land valuation;
- completeness, mandatory inclusion in the state land cadastre of all lands within the territory of Ukraine;
- objectivity, reliability and information completeness of the state land cadastre;
- combination of methodological and information spaces in the field of land valuation;

- openness and accessibility of land valuation data, legality of their receipt, distribution and storage;
- systematic identification of all changes and making them in the land cadastral data;
- continuity of the land valuation process;
- priority of accounting and registration of real rights to land;
- documentation of all land cadastral information;
- equality before the law of the subjects of valuation activities in the field of land valuation.

According to the standard, environmental performance assessment is an internal management process that uses indicators obtained from information that allows you to compare the past and current environmental performance of the organization with the criteria of this effectiveness [4].

Environmental performance assessment should be appropriate to the location and type of organization, its needs and priorities, be cost-effective, and form part of the regular business functions and activities of land users. The information obtained in this assessment allows: to determine the necessary actions to ensure compliance with the environmental performance of the organization to the established criteria; identify important environmental aspects; identify opportunities to improve the management of environmental aspects (prevention of land pollution); identify tendency in environmental efficiency; increase the efficiency and effectiveness of all activities of the organization; identify strategic opportunities.

International standard ISO 14031 defines the following seven indicators of the environment state, which characterize the state of the surface layer of the earth on a local or regional scale:

*Near the objects of the organization:* 1) the concentration of certain pollutants in the surface layers of the soil in certain places; 2) the concentration of certain nutrients in the soil;

*In a certain area:* 3) the area of restored land; 4) areas set aside for waste disposal; tourism; occupied by swamps; 5) uncultivated and non-agricultural areas; 6) protected areas; 7) erosion of the surface layer of the soil to be measured.

Evaluation of environmental efficiency is carried out by analyzing the dynamics of these indicators over time, based on which conclusions are made about the effectiveness of environmental policy of land users (enterprises and organizations).

An analysis of recent research and publications that have begun to address this issue. Such well-known land surveyors as Gnatkovych D.I., Stupen M.G., Sokhnych A.Ya., Bogira M.S., Kazmir P.G., Lesechko M.D., Tretiak A.M., Gulko R.Y., Gorlachuk V.V., Drozdziak

M.V., and others made a significant contribution to the development of the theory and practice of land cadastral data use in land use. The scientific works of these and other scientists partially cover the organization of land use at the present stage.

### **The purpose of the article**

The purpose of the study is to analyze the adaptability of modern land cadastral accounting in Ukraine to assess the state of the environment (land) in accordance with the international standard ISO 14031 "Environmental Management. Environmental efficiency assessment"[4].

### **Subject of study**

The subject of the study is the standardization of environmental assessment of land use management.

### **Research methods**

The methodological basis is a dialectical method of cognition, through which the processes of institutional support for land use and protection in regulating land relations, the transition to a market economy, and in dynamics, as a constant transition from quantitative to qualitative changes.

The following methods were used in the study: historical - to study the scientific basis of development and organization of land use; monographic - in the processing of scientific publications on land use, the use of economic levers in land use; statistical - it provides the necessary information about the socio-economic development of settlements; settlement and constructive - substantiation of the division of state-owned lands on state and communal lands, their assignment to the respective land owners; balance - to study changes in the quantity and quality of land use in accordance with the forms of ownership.

### **Results of the research**

Let's analyze how much the current system of state land cadastre in Ukraine is able to provide an information base for assessing the environmental efficiency of land use of enterprises and organizations in accordance with ISO 14031.

According to Article 203 of the Land Code of Ukraine [1], one of the elements of cadastral accounting of land quality is the collection of information on the degree of soil

contamination. That is, land cadastral information should contain data on the concentration of pollutants in the surface layers of the soil. At the same time, the mentioned information is currently collected and processed in the process of systematic observations, which are carried out as part of land monitoring. Information on the concentration of nutrients in the soil in the land cadastral information, as a separate information layer is not taken into account. Nevertheless, indirectly, these data can be obtained from soil quality assessment materials of agricultural lands, where they are used for comparative characterization of soil fertility. To analyze the dynamics of nutrients content in soils, it is necessary to additionally involve materials of state monitoring of soils and agrochemical certification of agricultural lands [5].

State statistical reporting on the quantitative accounting of land (forms №6-zem, 6a-zem, 6b-zem, 2-zem [2]), which is regularly conducted in the land cadastre, allows to determine the area of land used for waste disposal, tourism, and occupied swamps.

Thus, column 51 of the 6-zem form contains data on land areas for waste disposal - land used under waste treatment plants and their auxiliary sites, as well as landfills of all kinds.

Of the total area of land owned and used by all legal entities and individuals, column 80 indicates the area of recreational land, and column 81 - historical and cultural purposes. The sum of these two indicators can be taken as defined in the standard "land of tourism".

Column 63 indicates data on open wetlands (swamps) - lands (not occupied by forest stands) that are partially, temporarily or permanently flooded with water and which in the non-flooded state are moist, spongy substrate, and the vegetation of which consists mainly of decomposed moss and other plants.

Uncultivated areas in a certain area can be defined as the value of column 66 - dry open land with special vegetation, areas that are not cultivated and not covered with forest, but in an area over 25% covered with woody or semi-woody vegetation (ferns, heather, ryegrass, etc. ), as well as plants with low nutritional value; virgin steppe protected lands.

Non-agricultural areas in a given area are equal to the difference between the total land area (column 2) and the area of agricultural land used for agricultural production, agricultural services (production buildings and yards, farm roads, runs), etc. (column 3).

The "protected areas" defined by the standard can be interpreted as an area of nature protection, which is accounted for in column 78 of the statistical form.

Indicators of erosion of the soil surface layer can be determined through the dynamics of eroded lands (including the degree of erosion). In the currently used form of land quality accounting "Characteristics of agricultural land by mechanical composition of soils and characteristics that affect their fertility" the area of land subject to the combined action of water

and wind erosion is shown in column 52. Areas of land subject to water erosion (total, weak, medium, strong), reflected respectively in columns 53-56 of the mentioned form.

In the generalized form of conformity indicators scheme of environmental condition (earth) defined by the ISO 14031 standard concerning the land cadastral information available in Ukraine, is resulted in table 1.

**Table 1. Compliance scheme of environmental indicators (land) ISO 14031 of land cadastral information in Ukraine**

Indicators of the environment state (land) ISO 14031	Availability of information in the land cadastre	Sources of data
Concentration of certain pollutants in the soil surface layers in certain places - near the objects of the organization	+/-	Information on the degree of soil contamination, monitoring data
Concentration of certain nutrients in the soil, in places near the objects of the organization	-	Materials of state monitoring of soils and agrochemical certification of agricultural lands
Areas of restored land	+/-	Accounting for areas of land that have undergone reclamation
Areas set aside for: a) waste disposal; b) tourism; c) occupied by swamps	+ + +	Stat. form 6-zem: column 51; column 80 + column 81; column 63
Areas: a) uncultured; b) non-agricultural areas	+ +	Stat. form 6-zem: column 66; column 2 - column 3
Protected areas	+	Stat. form 6-zem, column 78
Erosion of the soil surface layer	+	Form of land quality accounting (22), columns 52-56

Note: "+" - information is available; "-" - no information;

"+/-" - information is available in part.

However, the land cadastre has outdated information on the properties and erosion of soils based on cartographic materials of large-scale soil surveys of the 60s 19th century. Therefore, it is necessary to supplement the information with modern data, especially on agricultural land on the basis of land certification and new soil surveys, which requires the creation of a single information database based on GIS and coordination of data collection by all relevant government agencies.

### Conclusions

Thus, it can be concluded that the existing land cadastral accounting largely provides an information base for assessing the environmental efficiency of land use in accordance with the criteria of the international standard ISO 14031.

It is assumed that the implementation of the environmental management system described in the improved system of ISO 14000 standards will lead to increased environmental efficiency, as the standard is based on the concept that organizations and enterprises (land users) should periodically analyze and evaluate their environmental management system to identify opportunities for its improvement. Assessing the environmental efficiency of land use in accordance with international standards will improve the land management system in Ukraine in the context of the European integration strategy.

### Bibliography

1. Земельний кодекс України: Прийнятий 25.10.2001 № 2768-III // Відомості Верховної Ради України. 2002. № 3-4. Ст. 27. [Zemelnyi kodeks Ukrainy: Pryiniaty 25.10.2001 № 2768-III // Vidomosti Verkhovnoi Rady Ukrainy. 2002. № 3-4. St. 27.]
2. Про затвердження форм державної статистичної звітності з земельних ресурсів та Інструкції з заповнення державної статистичної звітності з кількісного обліку земель (форми № 6-зем, ба-зем, 6б-зем, 2-зем): Наказ Держкомстату України від 05.11.1998 № 377 // Офіційний вісник України. 1998. № 50. 218 с. [Pro zatverdzhennia form derzhavnoi statystychnoi zvitnosti z zemelnykh resursiv ta Instruksii z zapovnennia derzhavnoi statystychnoi zvitnosti z kilkisnoho obliku zemel (formy № 6-zem, ba-zem, 6b-zem, 2-zem): Nakaz Derzhkomstatu Ukrainy vid 05.11.1998 № 377 // Ofitsiyni visnyk Ukrainy. 1998. № 50. 218 s.]
3. Євсюков Т.О., Мартин А.Г. 2004. Деякі підходи до екологічної оцінки стану землекористування на основі даних земельного кадастру // Землевпорядний вісник. № 2. С. 65-69. [Yevsiukov T.O., Martyn A.H. 2004. Deiaci pidkhody do ekolohichnoi otsinky stanu zemlekorystuvannia na osnovi danykh zemelnoho kadastru // Zemlevporiadnyi visnyk. № 2. S. 65-69.]

4. W. Lee Kuhre. ISO 14031 – Environmental Performance Evaluation (EPE). Book 4: Practical Tools and Techniques for Conducting an Environmental Performance Evaluation / Prentice Hall, 1997. 480 p.
5. Про затвердження Положення про моніторинг земель: Постанова Кабінету Міністрів України від 20.08.1993 р. № 661 // Земельне законодавство України: Збірник нормативних актів судової та арбітражної (господарської) практики: У 2-х кн. Київ.: Урожай, 2002. Кн. 2. С. 33-35. [Pro zatverdzhennia Polozhennia pro monitorynh zemel: Postanova Kabinetu Ministriv Ukrainy vid 20.08.1993 r. № 661 // Zemelne zakonodavstvo Ukrainy: Zbirnyk normatyvnykh aktiv sudovoi ta arbitrazhnoi (hospodarskoi) praktyky: U 2-kh kn. Kyiv.: Urozhai, 2002. Kn. 2. S. 33-35.]

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## **THE HISTORY OF THE VOLYN PARAMEDIC SCHOOL AS THE CORE FRAGMENT OF THE ORIGINS OF UKRAINIAN MEDICAL EDUCATION**

### **Summary**

The article presents the historical and socio-political preconditions for the formation and development of medical education in Volyn in the second half of the XIXth century, in particular, the opening of the Volyn paramedic school, including the following aspects of its functioning: the organization of the educational process, medical practice, educational activities of students in the institution.

**Keywords:** paramedic school, provincial nobility, educational programs, trimester, hospital, school attender, bonesetter, qualification session.

### **Introduction**

The second half of the nineteenth century for the Russian Empire, which included the Volyn province with a population of about 4 million people, was marked by a number of reforms, including the provision of medical care to the population.

The general socio-economic weakness of the country, which was significantly amplified by poverty, unsanitary working and living conditions, lack of funds for health care (37 kopecks per citizen per year), and most importantly insufficient number of medical workers caused the emergence and spread of many diseases and epidemics all over its territory. In 1874, 138 out of 192 full-time paramedic positions in Volyn region remained vacant [2]. Therefore, public councils filed a petition with the authorities to open paramedic schools aiming at solving an important task, which presupposed bringing proper medical education to medical workers in rural areas. [1]

Thus, a four-class Volyn paramedic school, which was opened in 1875 in the city of Zhytomyr, became an integral part of the general system of professional training of medical personnel in the province in the late XIXth century.

### **Aim of research and research methods**

The aim of the article is to analyze the historical and socio-political preconditions for the formation and development of medical education in Volyn in the second half of the XIXth century, the opening of the Volyn paramedic school, the lives of its pupils.

Research methods used in the study include the following: bibliosemantic, systems analysis.

### **Research results**

The paramedic school as an educational institution began to function on February 2, 1875. There is no information on how many pupils entered the school premises for the first time, but it is known that three years later, in 1878, 15 paramedics graduated from the school. [3]

Until 1897, the school occupied small rented premises on Kyivska Street. Apartments with boarding houses were also rented from local burghers to accommodate students.

For a deeper understanding of the essence of the process of formation of the medical school, it is advisable to consider the organizational conditions under which we understand the factors that materially, socially and culturally contributed to the implementation of the educational process.

At the beginning of its existence, the paramedic school was three-grade, designed for 30 male pupils aged from 15 to 20 years. Preference for admission was given to boys from rural areas of Volyn province. Individuals from other areas were admitted only if there were vacancies, foreigners were not admitted to the school at all. [4]

Pupils of the paramedic school were divided into "state-funded" and "self-funded" categories. The first group of students did not pay for tuition and was fully supported by the local authorities, but after graduation was obliged to work in the rural medical unit for 1.5 years for each year of study, i.e. a total of 4.5 years.

Upon entering the paramedic school, it was necessary to submit, in addition to the application, the following documents: metric birth and baptismal certificate, smallpox vaccination certificate, "prihovor" of the village council (a kind of recommendation letter) or parish board certificate, later a certificate of primary education was included.

As for the educational qualifications of the first pupils of the paramedic school, they were required only to be able to read and write in Russian and to know the basic Orthodox prayers [2].

Given such a low level of education of entrants, the first grade was considered preparatory, i.e. it had to bring students' knowledge to an appropriate level. This is evidenced by the subjects taught in 1875 in the preparatory class: Law of God, Russian language and literature, arithmetic, geography, history, Latin, medical terminology. After some time, zoology and botany were added to this list.

For entrants to the paramedic school, there was another unspoken qualification, namely – mandatory belonging to the Orthodox religion and "Russian nationality", which meant Ukrainian peasants and individuals of "Great Russian" origin. For example, until 1912, there were no Jewish names on the school's student lists. The Volyn Provincial Administration explained the unspoken ban on the admission of Jews to the school by "economic considerations" [5].

It is necessary to pay attention to one important privilege which graduates of paramedic school had: individuals who had served a mandatory 4.5 years in the countryside were exempted from military service. Despite the fact that in the 1870s of the XIXth century the term of military service was changed to 6 years, yet military service remained the most difficult for the population of the empire.

As for the sources of funding for the Volyn Medical School, it should be noted that the tuition fees paid by "self-sufficient" pupils did not play an essential role. The school was subordinated to the Volyn Provincial Board and existed on the funds contributed by zemstvo (local administrative unit) for the maintenance of the rural medical unit. 11,200 rubles were allocated annually for the paramedic school, 3,201 rubles 32 kopecks of this sum were used to meet the needs of 30 pupils; therefore, the maintenance of one pupil cost the school 106 rubles 71 kop. for a whole year. In addition, everyone was given textbooks, the average cost of which was 19 rubles 36 kopecks, which remained the property of the student even after graduation. Moreover, one-time payment of 50 rubles was given to each successfully graduated student as the means of buying necessary household items and medical tools [6].

Also, in the beginning the school was created as a three-grade educational unit, but in 1897 it was transformed into a four-grade establishment [7]. The number of special subjects increased as well, now including anatomy, physiology, pharmaceuticals, children's diseases, surgery, hygiene, internal diseases, pharmacology, patient care, eye diseases, desmurgia, general pathology, venereal diseases, massage [8].

Pupils' success was determined by the following parameters: learning, behavior, diligence. The theoretical course was evaluated on a five-point scale, but in the academic

success registration papers the following marks were often found: 3 and 4/8, 3 and 2/11, 4 and 6/8 [4].

In addition to grades, at the end of each semester so-called "digit" lists were compiled, in which all students were divided into three grades. Individuals with the highest academic grades were in the first category, and the underachieving students fell into the "out of the category" [8].

At the end of the spring semester the students had to pass the exams. Those who did not have time were assigned "overexposure" in subjects for which they received unsatisfactory grades. If the grades did not improve next time the examination was passed, the student was expelled from school "for poor performance" or remained on a second term, but transferred from the council funding to student's private sources of paying for all the educational services provided, including hostel and textbooks.

Considerable attention was paid to the practical training of pupils, which took place on the basis of Volyn Zemstvo Hospital. During the holidays, students practiced in hospitals, where future medical professionals learnt how to provide relevant patient care, as well as enhanced their skills in the manipulation room of the department by applying knowledge in practice: dressings, intravenous and intramuscular injections, wound care, care for critically ill patients. All the work of students in the hospital was supervised by the teacher. After the internship students passed the exam of the commission, which included a teacher, head of department and a member of the public care of the hospital. Students had to pass the following exams: patient care, therapy, surgery, pediatrics, anatomy, pharmacology. Only successful graduates received diplomas and the title of junior paramedic, those who passed the trials with excellence got the qualification of senior paramedic [9].

Despite the fact that schooling lasted three to four years, the practical training of students remained unsatisfactory. Doctors of zemstvo have repeatedly pointed this out in their speeches at various congresses. It was the complaints of district doctors about the unsatisfactory training of paramedics that forced a number of zemstvos to file a petition to expand the teaching of special subjects by reducing the number of hours of general education.

In 1897, a new charter was issued for paramedic schools, which established a four-year term of study, and the educational qualifications of entrants were maintained in the amount of two years of public school. Thus, during this period anatomy, physiology, pharmacology,

pediatrics, surgery, hygiene, internal medicine, patient care, desmurgia, general pathology, sexually transmitted diseases and massage were studied at Volyn Medical School [9].

Students and teachers also took part in various activities, including disinfection. Thus, in 1903, 4th grade students under the guidance of city sanitary doctors disinfected contaminated houses and apartments. The teacher of epidemic diseases, doctor Yuliy Yosypovych Dolner, taught students to exploit disinfectants, and the teacher of pharmaceutical chemistry I. L. Shamborsky supervised the preparation of disinfectant solutions [10].

At the end of the course in May, school graduates passed the exam for the title of paramedic. All graduates received certificates, which remained in the medical department for the period of probation, in addition, those who had excellent grades also got a commendable certificate.

The first pedagogical staff of the Volyn paramedic school consisted of seven people, and state adviser Olexander Mykytovych Lavrentiev, who held a position of the assistant medical inspector, became the first director of this medical establishment. Among other members of the teaching core were: priest Karovytsky, who taught the Law of God; the teacher of the folk school Khomutov (Russian grammar and geography); the teacher of the Zhytomyr men's gymnasium Kachaunov (arithmetic); the junior doctor of "God-pleasing institutions" Robert Oleksandrovyeh Rynenberg (Latin); caretakers Zhnikrupa and Ivanov. In general, most school teachers who joined the institution in future were general practitioners, who worked at the school on a freelance basis without the right to be considered civil officials, for this privilege was the exclusive perk of the school principals. Thus, O. M. Lavrentiev and I. O. Sobolevsky had the rank of class V on the "table of ranks", which was equal to state councilor. The second and third directors. F. H. Bruns and D. S. Morozov had the rank of class VII, which correlated with a court counselor title, moreover, they also were officials of the medical department. Fedor Hryhorovych Bruns held the position of Volyn medical inspector for a long time, and D. S. Morozov was Assistant Medical Inspector. Bruns also became president of the Society of Physicians of the Volyn Province, which was established in 1886 [11].

Among the teachers of the late 19th and early 20th centuries the names of Eumen Dyakovsky, Justin Manilovsky, Mykola Kruzenshtern, Lev Strati-yevsky, Joseph Shamborsky, Yuliya Dolner, Fidelis Bagrinovsky, and Vasyl Krasnov can be found [12].

From 1895 to 1905, one of the first female doctors in Zhytomyr was a graduate of the St. Petersburg Medical Institute Raisa Semenovna Kruzenshtern, who also graduated from the Volyn Medical School [13].

Since 1900 Lev Yosypovych Strati-evsky and Dmytro Serhiyovych Morozov, who possessed the title of doctors of medicine, have been working as school teachers.

Teachers' salaries depended on the number of lectures and practical classes held and ranged from 150-200 to 650 rubles per year. The "salary" of the director was 800 rubles per year. Moreover, principal was also granted a free apartment at the school.

All issues related to the life of the school and its pupils were resolved at the meetings of the pedagogical council. Much attention was paid to the academic success of the pupils, therefore an individual approach was developed to each of them [14].

An important area of training future paramedics was to involve them in extracurricular activities. Thus, at the end of the XIXth century the issue of strict discipline became crucially important. The rules of interaction between teachers and students are reflected in the "Rules for students of the Volyn Medical School" (1882-1883). According to this code, the working day of paramedic school students began at 7 am with prayer and ended at 22 pm with evening prayer, after which everyone went to bed: further reading and talking were not allowed. A system of duty in the hospital and pharmacy was organized among the students as well. There were certain requirements for those on duty, namely: the shift in the hospital was carried out daily; students were not allowed to change days or shifts; the student was not allowed to leave the hospital during the shift, the only exception was Saturdays due to anatomy lesson. The pharmacy was on duty three days a week from 2 pm to 6 pm (Monday, Wednesday, Friday), another role implied obligatory fulfillment of all the requirements of the pharmacy owner H. Shamborsky. There were also strict regulations concerning leaving the school for private reasons. If necessary, the student had to notify the supervisor in advance and obtain written permission from the teacher or the police. On holidays, if the weather was good, students of the whole class under the guidance of a supervisor went for a walk outside the city and returned usually about at 17 pm, during the walk all went around the city in pairs [14].

For school students, according to the rules, there were a number of ethical restrictions and prohibitions, which they had to comply with, namely: it was not allowed to use driving services; smoking was also not allowed; students could not carry pocket money, for all the money savings were given to the supervisor, about which he made entries in a separate book

and, if necessary, the money was issued, but it was mandatory to notify the purpose and cost estimate. It was also forbidden to borrow from comrades, as well as to play any gambling for money. Mail could not be taken directly from the postman himself, it had to be passed directly to the supervisor. Parents could visit students on Wednesdays, Fridays and Sundays, but the supervisor had to grant his permission. Traditionally the meetings took place in the school canteen. In case of misunderstandings, the student had to first contact the supervisor, but if there was a need to report something to the principal, it was necessary pass, the information to the next student of the third grade, who delivered message to the principal when he appeared at school [14].

Much attention was paid to the religious education of students. On every major Christian holiday and the day before, all the pupils, led by the overseer, attended church, where they went in pairs. Regarding food, we note that the days of the week were divided into songs and modest. The menu was compiled according to the day, it wasn't much varied, but included meat, fish and vegetable dishes. Every Sunday on religious holidays and on "royal days" (holidays associated with events in the royal family - the birthday of the emperor, empress, heir to the throne, etc.), and on the day of liberation of peasants from serfdom, pies with cabbage and poppy seeds were served, including white bread and fruits. These holiday meals were provided because many students did not have the opportunity to go to the families on holidays, and often stayed at school and on vacation [14].

According to the core legal papers, the management of the institution took care of providing students with uniforms, and, therefore, each of them received sets of clothes for both winter and summer seasons, including corresponding footwear. The administration also monitored the quality of the fabric for sewing clothes. The shoes were ordered with a view to their further repair and were cleaned every month with grease or wax. Each medical student wore an overcoat of thick gray soldier's cloth with a turn-down collar, black cloth buttonholes, copper buttons and pockets, a black "guard" leather-lined cap with a pleated hem and visor, knee-high boots. Also, all students received three free meals a day, which cost 15 kopecks a day and annually – 47 rubles. 25 kopecks. At the same time, school directorates strictly controlled both the quality of food and the cooking process [14].

At the beginning of the XXth century, the educational process in all Zemstvo paramedic schools, including Volyn, improved significantly. The general education requirement for entrants was raised, and competitive entrance exams were introduced. The new curriculum and programs for paramedic schools, approved in 1903, provided for some reduction in general

education and a significant expansion of special disciplines. Systematic observation of patients based on medical history, as well as the study of therapy, surgery, pediatrics, obstetrics, introduced summer internships. Women were allowed to enter the school again [9, 15].

On June 12, 1906, the Volyn Provincial Committee decided to transform the Volyn Zemstvo School for Paramedics (the official name of the school since 1904) into a school for paramedics and midwives.

### **Conclusions**

The opening of the Volyn Medical School in 1875 started a new era of the development of medicine in Volyn region, as well as substantiated another significant stage of medical training improvement in the second half of the 19th century, which was well-organized and based on the scientific principles. The analysis of archival sources, professional literature showed that the institution has developed certain forms, methods of managing the educational and upbringing activities of students. The main point in the content and means of education, in addition to professional training, was the formation of religiosity, piety, virtue, the establishment of a sense of mercy.

### **References**

1. Полный свод законов Российской Империи [Complete set of laws of the Russian Empire],- СПб., Изд. Юридического магазина И.И.Зубкова.- 1911,- Кн.2,- С.3168-3169.
2. Волынские губернские ведомости [Volyn Provincial Gazette],- 1874., 25 сентября.- № 68.- С.3.
3. Требовательные ведомости на выдачу жалованья служащим фельдшерской школы за 1911г [Demanding statements for the issuance of salaries to employees of the paramedic school for 1911]. – ДАЖО, ф.85, оп. 1, спр. 13, 1911р. – 270 арк.
4. Протокол заседаний педагогического совета фельдшерской школы [Minutes of meetings of the pedagogical council of the paramedic school]. – ДАЖО, ф. 67, оп. 2 доп., спр. 16, 1902 р. – 102 арк.
5. Протоколы заседаний педагогического совета Волынской фельдшерской школы. Список преподавателей школы [Minutes of meetings of the pedagogical council of the Volyn paramedic school. List of school teachers]. – ДАЖО, ф. 183, оп. 1, спр. 227, 1901–1911 р.р. – 65 арк.

6. Журналы, акты, переписка и другие материалы по содержанию Волынской фельдшерской школы [Journals, acts, correspondence and other materials on the content of the Volyn paramedic school]. – ДАЖО, ф. 183, оп. 1, спр. 139, 1904–1905 pp. – 92 арк.
7. Копии циркуляров главного врачебного инспектора 1911–1918 гг [Copies of the circulars of the chief medical inspector 1911-1918]. – ДАЖО, ф. 85, оп. 1, спр. 11, 1911–1918 pp. – 135 арк.
8. Протоколы педсовета Волынской фельдшерской школы, рапорт директора школы об успехах и поведении воспитанников, об освобождении от платы за обучение [Minutes of the teachers' council of the Volyn paramedic school, the report of the school director on the successes and behavior of the pupils, on exemption from tuition fees]. – ДАЖО, ф. 67, оп. 2 доп., спр. 47, 1903–1904 pp. – 56 арк.
9. Медична освіта на Волині: становлення і розвиток (XIX – 30-ті pp. XX ст.): Навчально-методичний посібник/за ред. Проф. М.В. Левківського [Medical education in Volyn: formation and development (XIX - 30s of the XX century): Educational-methodical manual / ed. Prof. M. V. Levkivsky]. – Житомир: Вид-во ЖДУ ім. І. Франка, 2007. – 80 с.
10. Прошение о приеме в Волынскую фельдшерскую школу [Application for admission to the Volyn paramedic school]. – ДАЖО, ф. 67, оп. 2 доп., спр. 49, 1902 p. – 80 арк.
11. Волынские губернские ведомости [Volyn Provincial Gazette],- 1875., 5 февраля, № 10,- С.4.
12. Журналы, акты, переписка и другие материалы по содержанию Волынской фельдшерской школы [Journals, acts, correspondence and other materials on the content of the Volyn paramedic school]. – ДАЖО, ф. 183, оп. 1, спр. 139, 1904–1905 pp. – 92 арк.
13. Отчеты триместровые и годовые [Annual and tremister reports]. – ДАЖО, ф. 713, оп. 1, спр. 93, 1925 p. – 100 арк
14. Медична освіта на Волині (XIX – 30-ті pp. XX ст.): Монографія [Medical education in Volyn (XIX - 30s of the XX century): Monograph]. – Житомир: «Полісся», 2010. – 240 с.
15. Irena Krukovska: Oświata medyczna na Wolyniu w latach 1805-1939, “Kwartalnik Krynica” nr 97-98, Wydawnictwo “KAIROS” Krakow 2017 r., s, 58

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## **THE USE OF INNOVATIVE TEACHING METHODS IN THE TEACHING OF BIOLOGICAL SCIENCES IN HIGHER EDUCATION INSTITUTIONS.**

### **Summary**

The article notes that at the stage of Ukraine's entry into the market economy, European integration, building an independent state, democratization of society, humanization of higher education, student-centeredness there is a need to rethink the higher education system and abandon the adaptive model of learning in favor of personality-oriented education. The article clarifies the essence of the concept of «innovative teaching methods», substantiates the need for their introduction into the educational process and presents the results of a study on the effectiveness of innovative methods in teaching the educational component «Laboratory Diagnostics». The methodological features of the use of the case method, role-playing games, brainstorming, tag cloud in the teaching of biological sciences in higher education institutions are described.

**Keywords:** innovative teaching methods, biological sciences, higher education institution, case method, project method, role-playing games, tag clouds.

### **Introduction**

The rapid development of society and the integration of Ukraine into the European political, economic and cultural space are the realities of today. The experts of various specialties with higher education have a cardinal influence on the formation of Ukraine as an independent state, its national revival and the transition to market relations. A special place among belongs to future teachers and lecturers as highly competent and comprehensively educated specialists, whose level of training should provide the socio-pedagogical needs of society in the implementation of the «National Doctrine of Education Development of Ukraine

in the XXI Century» [16]. The content of the educational space is influenced by the democratization of society, the humanization of higher education and student-centeredness. It requires the rethinking of the paradigm of higher education and its reforming. Thereby it is inevitable to find new techniques, teaching methods and forms of organization of educational activities [1]. Restructuring of the educational process in higher education institutions involves the renovation of approaches to learning, focused on the personality of students and formation of their general and special competencies. Therefore, the introduction of effective innovative techniques, teaching methods that would contribute to the achievement of program results provided by educational and professional programs of specialties, is relevant.

The aim of the research is to reveal the essence of innovative teaching methods, to characterize the methodological features of implementing such innovative methods as case method, project method, role-playing games, tag clouds during the preparation of higher education applicants of the specialties 091 Biology and 014.05 Secondary education (Biology and human health).

To achieve the aim, the following tasks are performed:

- to substantiate the need for the introduction of innovative teaching methods;
- to reveal the essence of the concepts «method», «teaching method», «innovative methods», «active and interactive methods» in the context of didactics and pedagogics of higher education;
- to reveal the role and importance of innovative teaching methods in the preparation of higher education applicants;
- to describe the most effective innovative methods and techniques of teaching biological disciplines for future biologists and biology teachers.

### **Research results**

Among the innovative methods that are most in demand in today's educational services are active and interactive teaching methods. As the creative component of education grows significantly, the role of all participants in the educational process becomes more active, the creative and exploratory independence of students is strengthened, and the concepts of problem-based and interactive learning have become especially relevant today. During such training the student enters into a dialogue with the teacher, performs creative, problem tasks, answers the questions that develop analytical and critical thinking, asks the questions to the teacher and other participants, so creative cooperation of the teacher and students is activated (they solve problems, model situations, evaluate the actions of classmates and their own behavior together).

The integration of Ukrainian higher education into the European educational space is associated with problems, the solution of which involves reforming the training system in accordance with international requirements. With the growth of information from many fields of science and technology, radical changes in the social sphere, high professional requirements for future professionals, it is necessary to intensify the learning process, create conditions for training highly qualified staff using modern technologies and teaching methods [6].

In the higher education institutions innovative methods and techniques contribute to the development of creative activity and research initiative of students, lay the foundation for further understanding and development of knowledge, the successful application of acquired knowledge in practice. The introduction of innovative technologies in the educational process helps to train highly qualified, competitive biologists and biology teachers who are able to perform complex research, professional and creative tasks.

Before moving on to the problem of innovative methods and forms of education, it is necessary to reveal the essence of the concept of «innovation» in relation to higher education.

The concept of «innovation» has existed in the international lexicon for over a hundred years. It existed and developed at first mainly in the economic, banking, technical, organizational and managerial spheres, and only in the last quarter of the XX century it became widespread in education [2].

J. Botkin's scientific work «Innovative Learning» states: «Innovation is a constant desire to reevaluate values, preserve those that are of undeniable importance, and the abolition of those that are outdated» [3]. In the scientific, pedagogical and methodological literature the concept of «innovation» is most often used in the composition of terminological phrases: innovative method, innovative methodology, innovative approach, innovative technologies etc. In a general sense, «a method» is a technique or system of techniques for achieving a goal. As a general didactic concept, «method» is a set of techniques of interdependent activities of the subjects of the educational process, aimed at achieving the educational goal, education and personal development [8]. The essence of innovative methods has been the subject of research by both foreign and Ukrainian scientists. General theoretical, scientific and practical problems of the innovation paradigm in higher education, progressive forms and technologies of education are revealed in the works of A. Aleksiuk, I. Dobroskok, V. Kotsur, S. Nikitchyna, V. Kremen, V. Ilin, S. Proleiev, M. Lysenko, P. Saukh and others [4].

The concept of «innovative teaching methods» is multicomponent, as it combines all the new and effective ways of learning (acquisition, transfer and production of knowledge), which contribute to the intensification and modernization of the educational process, develop creativity and personal potential of its participants [2]. The history of the emergence and formation of innovative pedagogical sphere in education abroad and in Ukraine is given in the monograph by O. Dubaseniuk [6].

Activation of the modern innovation movement in Ukraine contributes to the formation of authorial schools of innovative type (M. Huzyk, O. Zakharenko, A. Solohub, M. Chumarna, etc.), whose activities are aimed at forming qualitatively new, alternative concepts and pedagogical systems [6]. Modern methods of teaching biological disciplines in higher education institutions have a rich arsenal of various methods, techniques and teaching aids. Innovative methods are characterized by novelty, efficiency, effectiveness, expediency of use in modern conditions. Innovative teaching methods combine all new and effective ways of learning, which contribute to the intensification and modernization of the educational process. Due to the strengthening of creative and exploratory independence of students, the concepts of problem-based and interactive learning have become especially relevant today. During their implementation, the student enters into a dialogue with the teacher, performs creative, problem tasks, answers the questions that develop analytical and critical thinking, asks the questions to the teacher and other participants in the learning process; that activates creative cooperation of teachers with students, as a modern specialist must think critically, choose the best solution in different situations.

Research and teaching staff become the creators, modifiers of specific innovations. The innovative position of the teacher is characterized by creative activity, personal readiness to review and restructure the system of their own activities [13].

The methods of teaching biological disciplines should be personality-oriented; their indicators are: students' motivation to study; favorable, comfortable educational environment to achieve the goal; reliance on experience, knowledge, skills and abilities of students; a sense of control over the learning process; achieving success, meeting cognitive needs and the need for self-realization; full immersion in the learning process; sufficiency of time for assimilation of new knowledge and skills; no health risk factors; changing the content of teaching and the position of the teacher [17].

In this article we consider the essence of innovative methods and techniques:

- ✓ «brainstorming»;

- ✓ case method (case-study);
- ✓ role-playing game;
- ✓ project method;
- ✓ tag cloud.

The case method was first used in the educational process of the Harvard School of Business in the early XX century [11]. Initially, the case method was used in business and law schools. In Ukraine it was first introduced in 1992 at the National Academy of Public Administration under the President of Ukraine [18]. Later it began to be used in the training of specialists in various specialties. Currently this method is promoted by specialists of the Center for Innovation and Development (V. Loboda, Y. Surmin, A. Furda, O. Sydorenko, etc.) [18]. Y. Shapran recommends the use of the case method in the training of future biology teachers, as it promotes the development of creative potential and positive motivation for students to learn and is personality-oriented, plays an important role in formation of the professional competence of future teachers [15]. R. Romaniuk substantiates on the examples the effectiveness of the case method in the training of biology teachers of the senior profile school in higher education institutions [14].

When implementing the case method, the educational material is presented to students in the form of microproblems, and knowledge is acquired in solving specific life and professional situations, as a result of active creative and research activities. Case-study is a specific, personality-oriented, practically problematic method of organizing the educational process, which has a clear description of the practical problem and a demonstration of finding ways to solve it [15]. Cases have a certain structure, which includes necessarily:

- 1) case situation (problematic situation from real life, which has a number of contradictions, ambiguous solution, as well as information about the time, place, actions of the participants in the situation)
- 2) tasks for working with the case;
- 3) information material of applications (scientific articles, methodical recommendations, Internet resources, illustrative material, list of additional sources of information, etc.).

Working with the case includes the following four stages: 1) individual independent work of students with case materials (acquaintance with the situation, identification of the problem, formulation of key alternatives, proposal of a solution or recommended action); 2) work in small groups on solving a key problem, analysis of consequences, decision-making; 3)

presentation and examination of the results of small groups at the general discussion, the choice of solutions to the problem 4) reflection and determination of results [6].

The cases used by research and teaching staff of the Faculty of Natural Sciences of Zhytomyr Ivan Franko State University during the teaching of methodological disciplines aimed at training future teachers of natural sciences, as well as in mastering higher biological disciplines (biochemistry, histology, animal and human physiology, parasitology, microbiology with the basics of virology, laboratory diagnostics, etc.) can be divided into practical, educational and research cases. In the evaluating the results of case studies of students their activity when discussing the described situation, the search for original constructive solutions to the problem; application of theoretical knowledge in various fields of biology and / or methods of its teaching; use of facts, reference material for reasoned speeches; the ability to clearly express their position are taken into account. The advantages of case-study are: constant interest of higher education students in the learning process, active acquisition of knowledge and skills, development of creativity and critical thinking, designing future professional activities, the formation of professional competence.

The application of the case method requires from the teacher a careful selection of theoretical and practical material. The teacher first asks students to pre-work the necessary theoretical material on a particular problem, then specific examples of situations that should be discussed with students in the class. The practical professional experience of the teacher in this work acquires special importance. This method deserves an honorable place in the modern methodology of teaching professional disciplines in higher education [2].

Here is an example of a case that can be used in classes on «Laboratory Diagnostics»: «A sick man aged 65 complains of malaise, general weakness, bone pain. Blood test results: protein – 110 g/l, hypercalcemia, ESR (erythrocyte sedimentation rate) 82 mm/h, anemia, thrombocytopenia. Plasma cell infiltration was found in the sternal punctate. Make a probable diagnosis».

Role-playing is one of the most popular types of educational work among students of specialties 091 Biology and 014.05 Secondary Education (Biology and Human Health), as it is based on creativity and collective cooperation. The effectiveness of this method is determined by the quality of prior training of teachers and students. The main purpose of any role-playing game is to create a situation as close as possible to the real one, in which the student must perform the necessary professional actions, correctly apply the acquired knowledge, identify the competencies [2]. The teacher prepares a game script, in which students can help him. The

main components of the preparation and conduct of the game: the creation of the plot (a specific life or close to such a situation); plot processing; work with literary sources; distribution of roles; actions of game participants; analysis and summarizing. As for possible roles in the business game, the list of its participants is determined depending on its nature, content and purpose. The key point of role-playing games is the reincarnation of applicants in accordance with the roles played, which creates opportunities for improvisation, the development of reconstructive and creative thinking. The actions of the participants of the role-playing game are not strictly regulated, accordingly their course may deviate from the previously planned one. Such games convey simulations of life situations in which applicants take on the role of specialists in certain specialties (laboratory assistant, biology teacher, biology teacher, etc.) and make certain decisions. An example of such a game is «One hour of clinical diagnostic laboratory» or modeling and conducting a biology lesson in secondary school.

Another method used by scientific and pedagogical staff of the faculty is the project method, which originated in the United States in the 20s of the XX century. The ability to use it is an indicator of high qualification of the teacher [10]. J. Dewey, W. Kilpatrick and E. Collings started the method of projects in educational activity [5]. P. Blonskyi, V. Vakhterov, A. Makarenko, V. Sukhomlynskyi, S. Shatskyi and others noted the effectiveness of this method [8]. This method is attributed to the «technologies of the XXI century, which provide, above all, the ability to adapt to rapidly changing human living conditions in post-industrial society» [10].

The main features of the project method are: the presence of a significant research problem in terms of research, which requires integrated knowledge, research search to solve it; practical, theoretical, cognitive significance of the obtained results; independent activity; structuring the content of the project; use of experimental methods [10]. The advantage of this method is a strong connection between theory and practice, that teaches to plan the activities, develops the ability to observe, verify, analyze and summarize [9]. In addition, using this method the participants learn to work in a team, self-organize, express opinions, listen to others, learn to seek consent, develop a common opinion about what and how to do [12].

The main stages of project activities are preparatory, training and final. During the first there is the formation of groups of participants, the choice of topics, definition of the purpose, structure of the project and the form of its final product. At this stage it is necessary to determine what the project will be: individual, pair or group. If the project is pair or group, then it is

necessary to distribute responsibilities among the members of the group. As part of the training phase there is research, collection of information by applicants, its analysis, processing. At the final stage applicants prepare for the presentation of the final product, presentation of the final product, evaluation of project implementation [9].

Research and teaching staff of the department use research projects most often. Their implementation, first of all, takes place within the student scientific work. The results of group project activities can be presented in laboratory and practical classes, meetings of problem groups, research groups or in the form of qualifying work in the case of individual work.

The researchers note that when starting a project activity and moving from one stage to another, the teacher acts as a coordinator for independent search for knowledge, creative processing of information results. Since the project is planned and implemented by a student individually or in a group of students, this method provides favorable conditions for enhancing their responsibility, the formation of partnerships between project executors and the teacher.

In order to increase the mental activity of participants in the educational process an innovative method of «brainstorming», which involves joint group and creative work in the audience to solve complex problems or unusual situations, is used. It is advisable to use it at the very beginning of solving the problem. The problem is formulated as a question. At the first stage participants generate their ideas and suggestions. At the second stage there is an active discussion, classification and selection of the most promising proposals.

Recently the introduction of infographics in the educational process has become an important issue. It should be taken into account when teaching academic disciplines, that infographics fully reflect the content of educational material and correspond to the cognitive processes of higher education students during the assimilation of educational information. Research and teaching staff increasingly use modern methods, the purpose of which is to optimize and intensify the educational process. One of these is the «tag cloud» or «word cloud». It is an information technology created by marketers, and infographics in general were conceived as a tool of marketing communication.

«Tag cloud» is a list of shortcuts, categories or keywords of textual content that is a means of visualizing information (Fig. 1).



have a visual type of memory and a bright visual perception of information, a cloud of words helps to memorize textual information.

To establish the effectiveness of the implementation of innovative methods and techniques, a research was conducted. To do this, the level of success of applicants for higher education was studied. Two groups of 15 students of the Faculty of Natural Sciences of Zhytomyr Ivan Franko State University, specialty 091 Biology of the first (bachelor's) level of higher education were selected for the experiment; the level of students' knowledge was approximately the same. It was established by the results of the previous examination session: the absolute indicator of the level of knowledge in both groups was 93.3%, and the qualitative indicator of the level of knowledge was 60%.

We analyzed the results of students' success in two groups: control and experimental during the study of the discipline «Laboratory Diagnostics». In the first group learning took place using traditional methods, in the second – using innovative methods («brainstorming», «tag cloud», role-playing games, project-based learning, case method). After studying five topics, students' knowledge was assessed, and the results are presented in Figures 2-6.

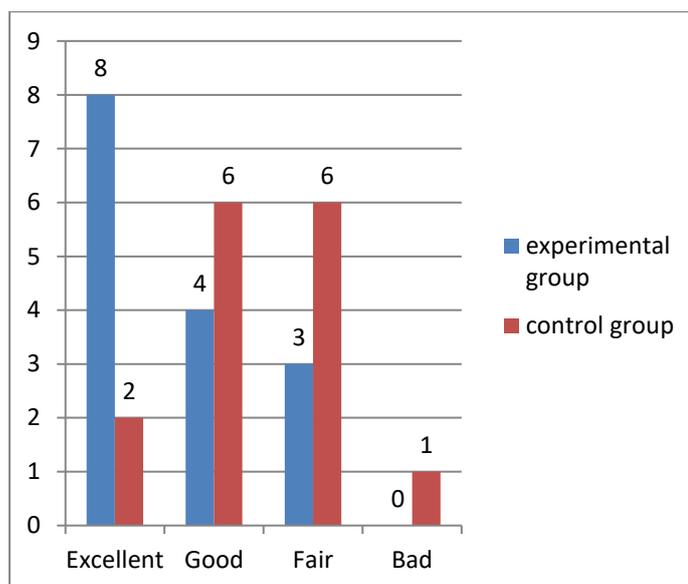


Figure 2. The results of student success on the topic: «Basic techniques and operations in laboratory research»

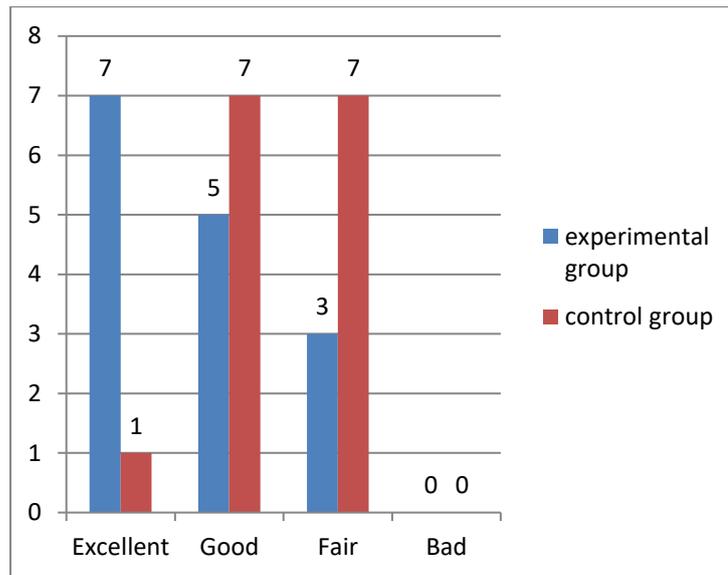


Figure 3. The results of student success on the topic: «Preparation, fixation and staining of blood smears»

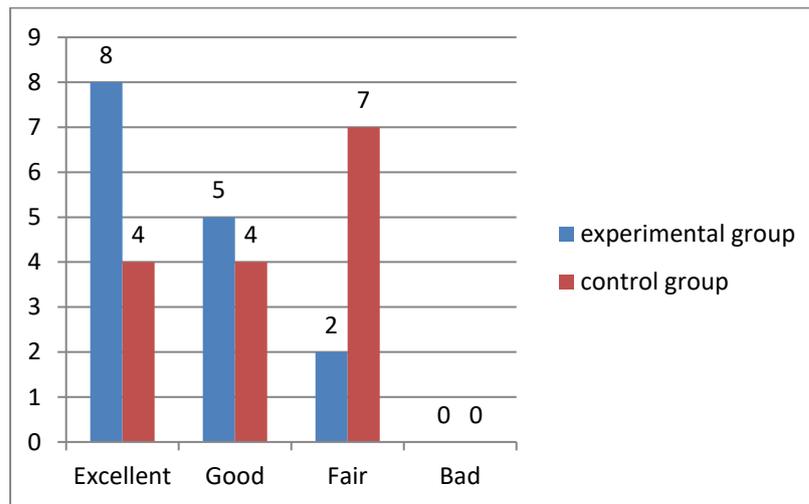


Figure 4. The results of student success on the topic: «General clinical blood test»

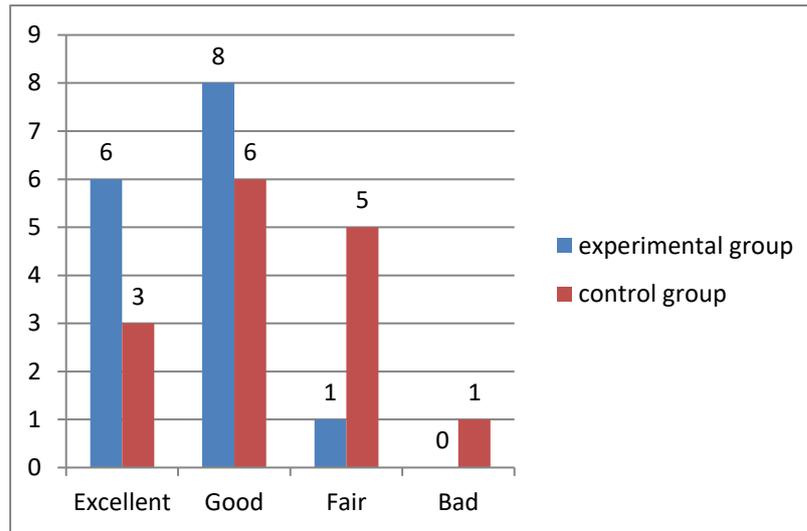


Figure 5. The results of student success on the topic: «Study of fluids from serous cavities»

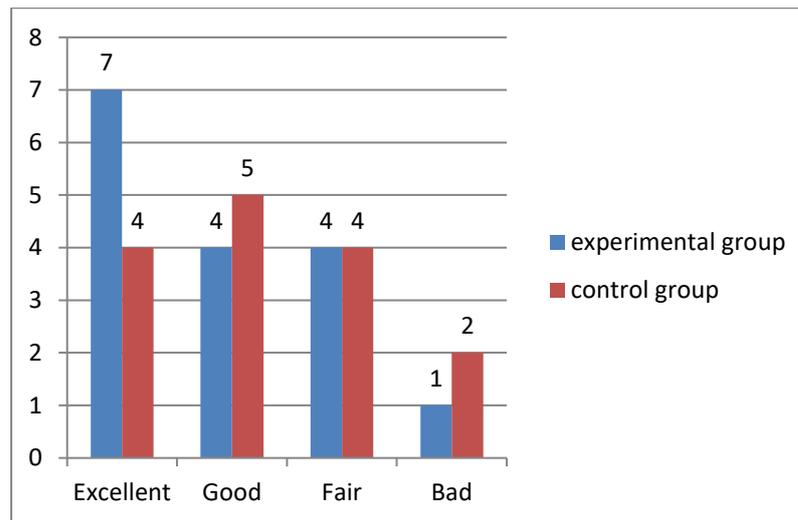


Figure 6. The results of student success on the topic: «Microscopic examination of urine sediment»

The qualitative indicator of the level of knowledge on five topics is presented in the chart.

**The chart “Qualitative indicator of the level of students’ knowledge on the topics of the discipline «Laboratory Diagnostics»”**

№	Name of the topic	The qualitative indicator, %	
		Experimental group	Control group
1.	Basic techniques and operations in laboratory research	80	53
2.	Preparation, fixation and staining of blood smears	80	67
3.	General clinical blood test	87	53
4.	Study of fluids from serous cavities	93	60
5.	Microscopic examination of urine sediment	73	60

According to the results of the study of the effectiveness of innovative teaching methods in relating to the discipline «Laboratory Diagnostics», the quality of knowledge of students who were trained using innovative methods was better by 13-34%.

In addition, the experimental group noted a constant interest of higher education students in the learning process, active acquisition of knowledge and skills, development of creativity, creative and critical thinking, designing future professional activities, the formation of professional competence.

### **Conclusions**

The need to rethink the system of higher education in Ukraine in connection with Ukraine's entry into a market economy, European integration, building an independent state, democratization of society, humanization of higher education, student-centeredness is substantiated. The essence of the concepts «method», «teaching method», «innovative teaching methods» is established. It has been found that, unlike traditional methods, which are mostly focused on the reproduction and consolidation of knowledge, innovative methods require students not just to reproduce information, but to create, because they contain an element of the unknown in their conditions. They involve the formation of new knowledge, skills, competencies and program results from students. Innovative teaching methods combine all those new and effective ways of learning (acquisition, transfer and production of knowledge)

that contribute to the intensification and modernization of the educational process, develop a creative approach and personal potential of its participants.

The introduction of innovative technologies in the educational process helps to train highly qualified, competitive biologists and biology teachers who are able to perform complex research, professional and creative tasks. Innovative methods help to train professionals who can think critically and choose the best solution in different situations.

The effectiveness of the use of innovative teaching methods in the preparation of higher education students in the specialty 091 Biology has been experimentally proved. The qualitative indicator of knowledge of students, whose education was conducted using innovative methods, was better by 13-34%.

### **References**

1. Activation of the educational process in modern higher education: Methodical review / compiler L. Yakymova (2010). Kyiv: Personal [in Ukrainian].
2. Artykutsa, N.V. Innovative methods of teaching disciplines in higher legal education. Retrieved from: <http://ekmair.ukma.edu.ua/bitstream/handle/123456789/2424/?sequence=1> [in Ukrainian]
3. Botkin, J. (1983). Innovative learning. Education issues, 1, 222. Moscow [in Russian].
4. Bystrova, Y.V. (2015). Innovative teaching methods in higher education in Ukraine. Law and innovation society. 1 (4), 27–28 [in Ukrainian].
5. Collings, E. (1926). Experience of the American school on the method of projects. Moscow: New Moscow [in Russian].
6. Dubaseniuk, O.A. (2009). Innovative educational technologies and methods in the system of professional and pedagogical training. Professional pedagogical education: innovative technologies and methods: Monograph. Zhytomyr: I. Franko ZDU publishing house [in Ukrainian].
7. Hrytsai, N.B. (2017). Innovative technologies of teaching biology: a textbook. Rivne [in Ukrainian].
8. Hrytsai, N.B. (2019). Methods of teaching biology: a textbook. Lviv: New World – 2000 [in Ukrainian].
9. Hrytsai, N.B. (2016). Theory and practice of methodical training of future teachers of biology: monograph. Rivne: O. Zen [in Ukrainian].

10. New pedagogical and information technologies in the system of education: a textbook for students of pedagogical universities and systems of advanced training of pedagogical staff. Y.S. Polat. (2002). Moscow: Academy Publishing Center [in Russian].
11. Osina, N.A. (2018). Case method as a way of forming students' life competencies. Zaporizhzhia. Retrieved from: <https://naurok.com.ua/keys-metod-yaksposib-formuvannya-zhittevih-kompetentnostey-uchniv-13118.html> [in Ukrainian]
12. Pakhomova, N.Y. (2009). The method of the educational project in an educational institution: a manual for teachers and students of pedagogical universities. Moscow [in Russian].
13. Pautova, L.Y. (2004). Acmeological productivity of the innovative position of the teacher in the development of creative readiness of students for professional activity: Extended abstract of candidate's thesis. Shuia: Printing center [in Russian].
14. Romaniuk, R.K. (2021). Training of the teacher of biology of profile school: theory and practice: monograph. Zhytomyr: Euro-Volyn [in Ukrainian].
15. Shapran, Y.P. (2012). The use of case studies as a technology for interactive learning of future teachers. Bulletin of Luhansk Taras Shevchenko National University. 22 (257), p. VII, 180– 186 [in Ukrainian].
16. Shevchenko, V. Modern methods and technologies of teaching in higher education in Ukraine. European Humanities Studies: State and Society. Retrieved from: <https://core.ac.uk/download/pdf/162002537.pdf> [in Ukrainian]
17. Strelnikov, V.Y., Britchenko, I.H. (2013). Modern technologies of higher education: a modular manual for students of author's training courses for teachers of IIAT PUET. Poltava: PUET [in Ukrainian].
18. Surmyn, Y., Sydorenko, A., Loboda, V. and others. (2002). Situational analysis or case anatomy. Kyiv: Center of Innovation and Development [in Russian].

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## **TEACHER'S SELF-EDUCATION AS A PART OF PROFESSIONAL COMPETENCE.**

### **Summary**

The article deals with the peculiarities of self-education as a part of the teacher's professional competence. The paper analyses the concept of "self-education" and its stages, defines the main tasks of the teacher's self-education, since it is a key aspect in the teacher's development. The paper investigates ability level of teachers at higher education establishment to self-development and self-education. The article reveals the fact that most of the teachers under investigation are familiar with the principles, methods and rules of a person's self-education and self-development, as well as their level of self-development and self-education is slightly above average.

**Keywords:** competence, self-development, self-education, teacher.

### **Introduction**

International Commission on Education for the Twenty-first Century report, submitted by UNESCO, stated that "lifelong learning is a multifaceted dialectical process based on everyday experience and marked by intensive efforts to understand complex data and facts" [4]. That is, the contemporary society sets out the lifelong education being a continuous process of the teacher's self-development and self-improvement as the main requirement for a teacher [1]. This implies that self-education is one of the forms of pedagogical excellence and expertise improvement providing acquisition, renewal, spread and extension of knowledge, experience generalization by means of purposeful systematic self-education aimed at self-development and self-improvement of a person, serving their own interests as well as the objective needs of an educational establishment [4]. Education and self-education are important stages in the formation of the teacher's professional competence. Teacher's expertise is a complex personal

quality being an integral, dynamic system of professional abilities (independent competencies) making it possible to consciously and creatively determine and implement the educational activities, develop the teacher's own personality, achieve successful and optimal professional self-realization [3].

Self-education is a free individual's conscious activity aimed at providing information and knowledge of socially and individually significant types of substantive and practical spiritual activity, as well as cognitive and primarily intellectual potential formation, development and improvement [6]. This is a constant process of the teacher's self-development and self-improvement being carried out individually or collectively. A person being deeply involved in the process of self-education should be able to assess their capabilities and qualities, choose their place in life and society, be aware of their interests, find the source of knowledge and forms of self-education corresponding to their capabilities, plan their own activities, realize personal opportunities, etc. [2]. The teacher's self-education is an individual process carried out on the basis of the need for self-educational activities and competence [3].

The main objectives of the teacher's self-education are:

- improvement of existing and acquisition of new theoretical knowledge, practical skills and abilities in order to achieve the desired level of professional competence;
- mastering with subsequent use of new teaching and education forms, methods and techniques;
- study, generalization and practical application of high-potential educational experience, the latest pedagogy and psychology achievements, and new pedagogical technologies;
- personal abilities and professional competencies development;
- systematic individual and social experience updating [1].

There is a content of self-education as well as stages and corresponding steps of its implementation, namely goal setting, planning, organization, implementation and reflection. The goal setting stage involves its defining. The planning stage is the development of concrete steps by a person aimed at knowledge, skills and qualities improvement by means of self-education. The organization stage consists of searching for the necessary information and setting up the workplace. The implementation stage means the direct completion of the plan concerning knowledge, activity methods and qualities self-improvement by means of self-education. The reflection stage provides the person's awareness of the result having been achieved in the course of self-education [5].

Constant work on the contemporary teacher's self-education is becoming particularly topical nowadays, when the competence importance is growing, and success increasingly depends on the occupational attainment and pedagogical excellence level, the ability to productively work, use the person's internal reserves, and maximize the creativity [8]. It should be noted that the willingness to independently get, structure and transmit the necessary information is one of the most important professional competencies of any expert [9]. Therefore, teachers should improve the professional competence level, in particular by means of self-education [3].

N. Kuzmina, A. Markova, E. Seier, S. Sysoieva, L. Zelenska and others studied professional competence, which means the teacher's ability to solve professional problems. V. Adolf, L. Vashchenko, M. Lukianova, O. Ovcharuk, O. Pometun, O. Savchenko and others investigated the teacher's professional and pedagogical competencies. A. Aizenberh, S. Arkhangelskyi, A. Gromtsev, M. Zaborshchikov, V. Zahviazinskyi, O. Malykhin, G. Nalyvaiko, V. Slastenin, G. Shchukina reflected general theoretical foundations of self-education in their papers. T. Hus, V. Kazachestvo, L. Onuchak, A. Petrova, P. Pidkasystyi, A. Radchenko, O. Tymchenko, I. Shymko studied the organization of future teachers' self-education. A. Aleksyuk, Yu. Babanskyi, O. Dubaseniuk, A. Ivanchenko, N. Moiseiuk, N. Sydorhuk justified self-education methods. A. Gromtsev, O. Kochetova, P. Pshebilskyi, E. Tonkonoh, Ya. Turbovskyi reflected self-education structure and content. I. Barsukov reveals the issues of self-education propaedeutics. V. Bashkirov, N. Ivanov, N. Khmil, L. Ruvinskyi, G. Sukhobska, A. Usova, and others reflected the psychological foundations of self-education in their papers [3, 5, 7, 8].

Teacher's self-education should not be limited only to the activation of knowledge received during the study at a higher education establishment. This refers to familiarization with innovative pedagogical and psychological research, the latest production methods, the ability to master new forms, methods, techniques of students' teaching and education, theoretical knowledge, studying and practical application of advanced pedagogical experience and new pedagogical and production methods, the ability to analyze both the teacher's own and colleagues' activities as well as the educational process state, the ability to focus one's efforts on the goal achievement and tasks performing; the ability to adequately select content and necessary forms and methods of activity, understand problems, set priorities and tasks, to predict, design and plan the teacher's work, to possess self-control and self-assessment methods

as well as psychological and pedagogical interaction technologies, to show readiness for innovative activities [3, 9].

### **Purpose, scope and research method**

The aim of the study is to highlight the theoretical foundations of the self-education concept, as well as to determine the self-development and self-education ability levels of teachers of higher education establishment.

Subject of research is the teacher's professional competence.

Research methods include theoretical (method of scientific analysis, synthesis, abstraction) and empirical ones (questionnaires, quantitative and qualitative analysis of the results obtained). The research is based on the test questionnaire "Determining self-development and self-education ability levels" by O.V. Kuznetsova [10].

### **Results and discussion**

The study was conducted in June 2021 at the premises of Zhytomyr Ivan Franko State University (Ukraine). The study involved 25 teachers of different gender, age and specialty. During the test questionnaire "Determining self-development and self-education ability levels" by O.V. Kuznetsova teachers answered eighteen questions choosing the options "no", "partially", "yes".

The test questionnaire findings show that the majority of teachers (16 respondents) are familiar with the principles, methods and rules of the person's self-education and self-development. They have a serious and intense longing for self-education and their personal qualities and abilities self-development (Table 1).

**Table 1. Findings from the test questionnaire «Determining self-development and self-education ability levels" (%) Zhytomyr Ivan Franko State University teachers (Ukraine), (n=25)**

*Source: Own survey on the basis of conducted research.*

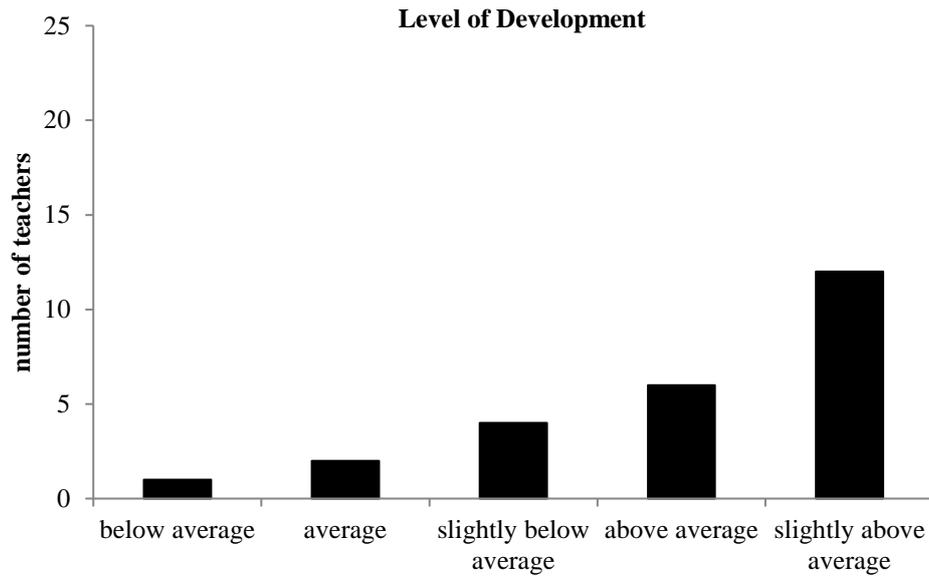
№	Question	answer option		
		«no»	«partially»	«yes»
1	2	3	4	5
1	Have you read about or are you familiar with the principles, methods, and rules of the person's self-education and self-development?	4.2 %	33.3 %	62.5 %
1	2	3	4	5
2	Do you have a serious and intense longing for self-education and self-development of your personal qualities and abilities?	4.2 %	33.3 %	62.5 %
3	Do your friends and acquaintances note your success in self-education and self-development?	16.7 %	33.3 %	50 %
4	Do you feel the desire to discover yourself and your creativity more deeply?	4.2 %	33.3 %	62.5 %
5	Do you have an ideal and does it encourage you to self-education and self-development?	33.3 %	29.2 %	37.5 %
6	Do you often think about the reasons of your mistakes and failures?	4.2 %	16.7 %	79.2 %
7	Are you capable of quickly mastering new activities on your own, like learning a foreign language?	16.7 %	62.5 %	20.8 %
8	Are you able to continue solving a difficult task if the first two hours did not give the expected result?	4.2 %	16.7 %	79.2 %
9	Do you keep a diary where you put down your ideas, plan your life? Do you analyze which of the planned tasks failed and why?	58.3 %	29.2 %	12.5 %
10	Do your friends consider you a person being able to overcome difficulties?	-	16.7 %	83.3 %
11	Do you know your strengths and weaknesses?	-	25 %	75 %

12	Do you care about the future?	-	4.2 %	95.8 %
13	Do you strive for respect from your closest friends and relatives?	-	16.7 %	83.3 %
14	Are you able to control and restrain yourself in a conflict situation?	4.2 %	50 %	45.8 %
15	Are you able to take risks?	4.2 %	79.2 %	16.7 %
16	Would you like to develop willpower or other qualities?	-	20.8 %	79.2 %
17	Would you like your opinion to be considered?	4.2 %	41.7 %	54.2 %
18	Do you consider yourself a goal-oriented person?	-	20.8 %	79.2 %

Besides, most teachers strive to discover themselves, their creativity, analyze their failures, work hard toward the goal, overcome difficulties arising during the life and confidently pursue the goal (Table 1).

The teacher's self-analysis is an essential aspect of their professional activity and life in general. The person's creativity development, professional growth and personal improvement depends on the direction of self-analysis development and the depth of understanding themselves as a professional [8]. Besides, the leading component of self-education content is the volitional powers and moral qualities formation. There is a strong relationship between the self-education organization and self-assessment of corresponding qualities. The force of public opinion, the criticism and self-criticism efficiency, friendly team environment, the teacher's help in choosing techniques and means of self-education indicate this dependence [2].

The test questionnaire findings show that 48% of the teachers under investigation have a slightly above average, 24 % have above average, 16 % have slightly below average, 8 % have average and 4% have below average level of development of the ability to self-development and self-education (Figure 1). It should be noted that the study did not reveal too low and low levels of self-development and self-education.



**Figure 1. Levels of development of the ability to self-development and self-education (%) of Zhytomyr Ivan Franko State University teachers (Ukraine), (n=25)**

*Source: Own survey on the basis of conducted research*

So, important indicators of the person's ability and readiness for action and change are consciousness of the need for lifelong self-education, self-development and self-improvement, a persistent need for self-education, an ambition to acquire the skills to learn independently, and the search for the person's own ways of self-education. Self-education is determined by the person's experience and individual ability, their desire for continuous self-education and self-improvement, creative attitude to business.

It should be noted that the the self-education system implementation depends entirely on the teacher's personality: the strength of their character, intellectual abilities level of development, creativity level, consisting in the ability to make non-standard decisions, express original ideas, and quickly find a way out of problem situations. It is necessary to remember that it is possible and important to teach creativity to a teacher, but it is only the teacher who can form their own style, enriching themselves as an individual, expanding their worldview, and cultivating their feelings.

### Summary

The current period of education modernization taking place in the course of education reform, makes increased demands on the teacher's professional competence. Nowadays it is obvious that society needs a mobile teacher requiring continuous self-education and improvement of personal and professional qualities.

The literary sources analysis shows that self-education holds a special place in the system of the teacher's professional competence development. Self-educational competence is formed on the basis of gaining experience in self-education and developing one's own individual model of self-education during pedagogical activity. Self-education brings positive results when it is carried out purposefully, orderly, and systematically. The test questionnaire findings show that the majority of teachers under investigation are familiar with the principles, methods and rules of the person's self-education and self-development, and their level of self-development and self-education is slightly above average. Teachers should be capable of continuous self-improvement, focused on changes in society in general and in education in particular. It is the self-education organization that plays a significant role in creating a system of the teacher's professional growth. The perfect self-education organization depends on many factors. Much depends on the motives of self-education, objective and subjective significance, theoretical and practical training, the degree of mastering the skills to carry out self-educational work, physiological and emotional state, and other factors.

Further research perspectives in this direction are to determine the readiness of both current and future teachers to work in the modern information and educational environment, increasing self-educational competence by means of the information and communication technologies.

### Bibliography

1. Androshchuk I.P. Self-education of pedagogical workers of out-of-school educational institutions. – Methodical principles for improving the qualification of pedagogical employees of the vocational education system. – 2016. – P. 301-306. [Androshchuk I.P. Samoosvita pedahohichnykh pratsivnykiv pozashkil'nykh navchal'nykh zakladiv. – Metodychni zasady pidvyshchennya kvalifikatsiyi pedahohichnykh pratsivnykiv systemy profesiynoyi osvity. – 2016. – S. 301-306.]
2. Bezliudna N., Dudnik N. Self-education in the process of professional activity Future teacher. – Problems of modern teacher training. – 2015. – № 12. – P. 119-124. [Bezliudna

- N., Dudnik N. Samoosvita v protsesi profesiynoyi diyal'nosti maybutn'oho pedahoha. – Problemy pidhotovky suchasnoho vchytelya. – 2015. – № 12. – S. 119-124.]
3. Vnukova O.M., Pomazan A.O. Self-educational competence of vocational education teachers. – Social-Humanitarian officer. – 2020. – № 32-33. – P. 44-46. [Vnukova O.M., Pomazan A.O. Samoosvitnya kompetentnist' pedahohiv profesiynoho navchannya. – Sotsial'no - humanitarnyy visnyk. – 2020. – № 32-33. – S. 44-46.]
  4. Izbash S.S., Chernykova V.A. Self-educational of future teachers of higher education as an andragogical problem. – Scientific bulletin of Melitopol State Pedagogical University. – 2016. – № 2 (17). – P. 142-146. [Izbash S.S., Chernykova V.A. Samoosvita maybutnikh vykladachiv vyshchoyi shkoly yak andrahohichna problema. – Naukovyy visnyk melitopol's'koho derzhavnogo pedahohichnoho universytetu. – 2016. – № 2 (17). – S. 142-146.]
  5. Kyselyova O.B. Self-education as integral part of preparation of teacher to professional activity in the conditions of the specialized teaching. – 2009. – P. 65-72. [Kyselyova O.B. Samoosvita yak nevid'yemna skladova pidhotovky vchytelya do profesiynoyi diyal'nosti v umovakh profil'noho navchannya. – 2009. – S. 65-72.]
  6. Lozovyi V.O., Yrahtorina O.M. Self-education, self-perfection personalities as a means of improvement cultures of communication. – Philosophy of Communication: Philosophy, Psychology, Social Communication. – 2018. – № 11. – P. 41-45. [Lozovyi V.O., Yrahtorina O.M. Samoosvita, samovykhovannya, samovdoskonalennya osobystosti yak zasoby vdoskonalennya kul'tury spilkuvannya. – Filosofiya spilkuvannya: filosofiya, psykholojiya, sotsial'na komunikatsiya. – 2018. – № 11. – S. 65-72.]
  7. Pylypenko E. Self-education as a pedagogical problem. – Scientific notes of the department of pedagogy. – 2011. – 27. – P. 145-150. [Pylypenko E. Samoosvita yak pedahohichna problema. – Naukovi zapysky kafedry pedahohiky. – 2018. – 27. – S. 145-150.]
  8. Ratushinskaya A. Continuing self-education as a necessary condition for personal and professional development of primary school teachers. – Continuing professional education: theory and practice (series: pedagogical sciences. – 2018. – № 1-2 (54-55). – P. 30-37. [Ratushinskaya A. Neperervna samoosvita yak neobkhdna umova osobystisnoho ta profesiynoho rozvytku vchyteliv pochatkovykh klasiv. – Neperervna profesiyna osvita: teoriya i praktyka (seriya: pedahohichni nauky). – 2018. – № 1-2 (54-55). – S. 30-37.]
  9. Stoichyk T. Self-education of teachers as a factor of security quality of vocational education. – Postgraduate education in Ukraine. – 2016. – № 1. – P. 60-61. [Stoichyk T.

Samoosvita pedahoha yak chynnyk zabezpechennya yakosti profesiynoyi osvity. –  
Pislyadyplomna osvita v Ukrayini. – 2016. – № 1. – S. 60-61.]

10. <http://vseosvita.ua/library/test-anketa-viznacenna-rivniv-zdatnosti-do-samorozvitku-j-samoosviti-81056.html>

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## **ANALYSIS OF THE SOFTWARE FOR STUDYING THREE-DIMENSIONAL MODELING BY FUTURE COMPUTER SCIENCE TEACHERS IN THE CONTEXT OF DISTANCE LEARNING.**

### **Summary**

The issue of the optimal choice for the software designed to organize the educational process in the context of distance learning of computer graphics is a complex issue, the solution of which requires balanced approaches. Adapting topics devoted to three-dimensional modeling is particularly difficult. That is why the article considers the main difficulties, specific for studying 3D graphics under conditions of distance learning, analyses required software that contributes to solving this issue and also focuses on further areas of research.

**Keywords:** distance learning, three-dimensional modeling, 3D graphics, Onshape, Fusion 360.

### **Introduction**

The development of Computer and Communication Technology has dramatically changed modern approaches to training future teachers of Computer Science in higher educational institutions of Ukraine. In particular, special attention is paid to training and upbringing the specialists who are able to fulfil their duties professionally under conditions of the information society, and therefore they have obtained the required set of relevant competencies for this purpose.

One of the most important competencies for a computer science teacher is inhouse competence. It is formed while the students are studying a number of subjects among which there is Programming, Physics and Mathematics, Computer Graphics and Three-Dimensional Modeling, Information and Communication Technologies, Web and Mobile application development etc. Self-education, scientific work and practical training also play an important role in the formation of a comprehensive trained teacher. This is a complex process in which

the importance of any components shouldn't be underestimated. In order to fully consider each of them and assess its impact on the formation of subject competence, it is necessary to conduct a deeper study, for this reason we will focus on the issues related to the study of three-dimensional modeling which is one of the most difficult to master by future computer science teachers.

Three-dimensional modeling is studied within the course "Fundamentals of Computer Graphics" together with such topics as raster and vector graphics. This field of Information Technology is developing extremely dynamically, and 3D software is used to design new products, create content for the gaming industry and develop visual effects for film production and etc. It is also quite common for students to use the appropriate software to implement their STEM research projects.

An important condition for further acquisition of the required competencies related to the ability to teach operating 3D graphics software by teachers of Computer Science is the availability of the required software enabling to create modern three-dimensional content for students under distance learning conditions.

Having analysed the scientific works related to the process of teaching students to work creating 3D graphics, a number of important areas of research requiring deep investigation was identified. The first is the coverage of didactic and methodological approaches to studying CAD/CAM software used in the design of technological products and preparing for production. In fact, this applies to the training of specialists of engineering and technological profiles in the institutions of pre-higher and higher education. So, Alekseiev O. M., Korotun M. M., Trebukhov D. V. investigated the issues of creating animation of technical assemblies of parts and studied its significance in increasing the motivation of students of engineering departments [Alekseiev O. M., Korotun M. M., Trebukhov D. V., 2018]. Saorin J. L., De La Torre Cantero J., Díaz D. M., Lopez-Chao V. focuse on training engineers using cloud-based 3D modeling systems [Saorin J. L., De La Torre Cantero J., Díaz D. M., Lopez-Chao V., 2019]. Dankwort C. W., Weidlich R., Guenther B., Blaurock J. E. noted that teaching students CAD programs is not only the study of modeling tools themselves, but in the first place it is the development of creativity and understanding of the design as a process consisting of creative, conceptual and engineering phases [Dankwort C. W., Weidlich R., Guenther B., Blaurock J. E., 2004]. A bit unconventional approach to learning CAD is offered by [Yen-Wen Cheng N., 1997]. The author considers the process of three-dimensional computer modeling

as an element of visual communication of a specialist through creation a model, and therefore it is advisable to use approaches and methods specific to learning languages, but taking into account particular features of the subject.

The second area is less covered in the scientific literature and concerns polygonal and procedural modeling software, which is more often used by the gaming, film and television industries. Thus, aspects of using Blender in 3D design are presented in [Dovramadjiev T., 2015] work and Khatri Preety compares the animation performance abilities in Maya and Blender [Khatri Preety, 2018]. The general principles of organizing and supporting technologies and tools for teaching computer graphics are analysed by [Suselo Th., Wünsche B. C., Luxton-Reilly A., 2019].

It is worth mentioning separately the field associated with the use of cloud-oriented services in teaching three-dimensional modeling [Saorin J. L., De La Torre Cantero J., Díaz D. M., Lopez-Chao V., 2019]. Thus Leipold K. N. describes the particular features of studying CAD systems by students in colleges basing on Onshape service [Leipold K. N., 2020]. The application of Autodesk Fusion 360 software for teaching teenagers in high school is described by [Suhada R. T., Ariyanti S., Fajar A. V., Komalasari A., 2018]

Thus, this brief overview of scientific sources demonstrates a significant interest of leading specialists to the development of didactic and methodological approaches to the study of three-dimensional modeling at pre-higher and higher educational institutions and even schools. But there are issues requiring a more detailed review. The direction associated with the adaptation of teaching 3D graphics to the conditions of distance learning under COVID-19 virus pandemic is extremely promising.

### **Purpose, scope and research method**

The analysis of research related to the study of three-dimensional graphics in the institutions of pre-higher and higher education, as well as the requirements to adapt the classical educational process of "Fundamentals of Computer Graphics" discipline under the conditions of distance learning, contributed to the formulation of the subject of this work. Thus **the purpose of this article** is the analysis of the opportunities to use modern software for three-dimensional modeling for training future computer science teachers of higher educational institutions under distance learning conditions .

Among the main tasks solved there are the following: description of the main problem situations that should be considered when adapting the teaching of three-dimensional modeling at creation a distance course; analysis of modern software applying "cloud" technologies to create three-dimensional content; justification of usage Autodesk Fusion 360 three-dimensional modeling complex for teaching students the Foundations of 3D graphics in context of distance learning.

To solve the abovementioned tasks, first, theoretical research methods were used (analysis of the best practices of scientists who worked out didactic and methodological issues of teaching students three-dimensional modeling, analysis and comparison of the main "cloud" services for creating 3D graphics). They enabled us to justify the choice of the required software. Empirical methods (observations, systematization and analysis of student activities and their problem situations risen during studying) provided an opportunity to characterize the main difficulties of teaching three-dimensional computer modeling.

### **Results and discussion**

Before proceeding to the software analysis that is optimal for the use in distance learning of three-dimensional graphics of future computer science teachers, we would like to report a number of difficulties observed when studying among the students under the conditions of distant learning.

1. One of the most common problems students encountered when organizing distance learning of this subject was the inability to use modern software to create 3D content on student computers due to high requirements for the hardware components.

2. The results of performing practical tasks are mostly stored in large files, which means that students of the course cannot usually send them for verification under the conditions of unstable Internet connection.

3. 3D modeling software should support different approaches to creation a three-dimensional virtual model, which will enable students to get acquainted and gain proper skills in solving various types of practical problems.

4. Support the ability to work together on educational projects of student groups.

5. 3D graphics, first of all, has a significant practical application, and therefore the main emphasis when studying it should be on the practical component, showing students the

examples of its application in various areas of modern Information Technologies (Engineering and production preparation, STEM student projects, gaming industry and cinematography, etc.).

6. Availability of audio and video materials to demonstrate the various examples applying software tools studied.

When organizing a distance learning it is also important to adhere to a number of principles of distance learning [Florkiewicz-Borkowska M., 2020].

In this context, the classic software used for three-dimensional modeling (Blender 3D, Maya, 3DSMax, FreeCAD, SolidWorks, etc.) is no longer effective for teaching 3D modeling. These programs are usually demanding for PCs and saved project files take up large amount of memory when performing complex tasks. However, they are still most often used in the production spheres of various modern information technologies. Thus, software systems that functionally approach the software installed on desktop personal computers, and, at the same time, perform basic calculations and store data "in the cloud" remain the priority and, in fact, are more available. Of course, an important condition is to maintain the opportunity to fulfill tasks off-line.

Further research focuses on analyzing the possibilities of using cloud services. The following online services for three-dimensional modeling as TinkerCAD, SelfCAD, Vector, Clara.io, SketchUp Free have been studied. The presented tools for creating 3D graphics online work through a browser, which makes it easier for students and teachers to access but they also have a different set of tools for modeling virtual spatial objects. Their important drawback is the inability to work offline. It is problematic to use these services as full-fledged CAD/CAM systems that also significantly reduces the scope of their application.

The next group of cloud-based three-dimensional modeling tools that are worth considering in more detail consists of two systems: Onshape and Fusion 360.

Onshape is an online service for three-dimensional modeling, which professionally supports various approaches to the creation of a 3D model and enables you to prepare production processes in a browser window, insuring teamwork on a project. The online service is developing extremely dynamically and expanding its capabilities for creating virtual three-dimensional objects. At the same time, the development team working on its creation has provided free licenses for students and teachers but its functionality is limited compared to the functionality of other subscription programs.

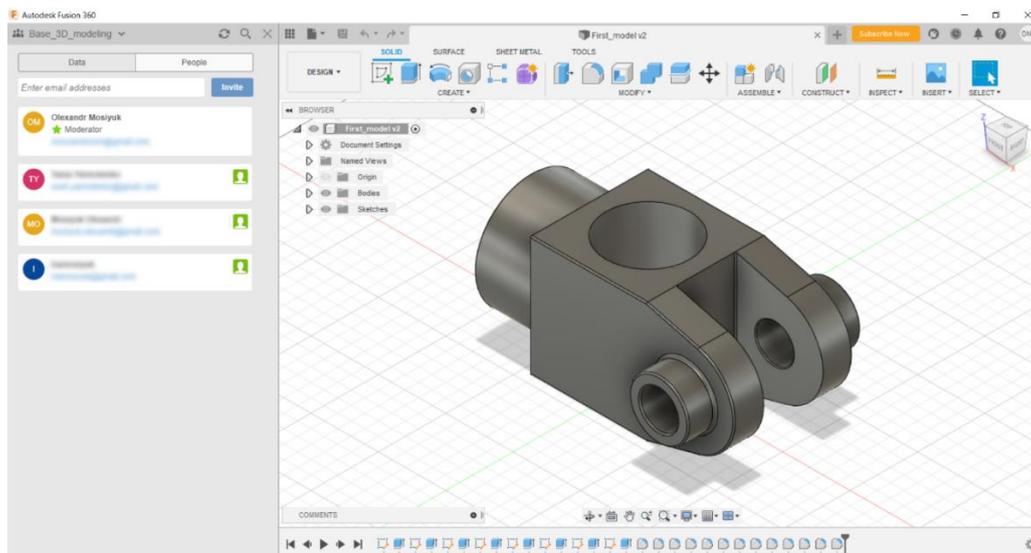
A slightly different approach was implemented when creating the Fusion 360 software package. The system is a full-fledged 3D editor and at the same time CAD/CAM system. Since the program is installed on a computer, it can work off--line, and, if connected to the Internet, saves projects in a dedicated user storage. This approach qualitatively distinguishes the program from other complexes. In addition, the opportunity design and model jointly in a team is available for Fusion 360 which is implemented using the Fusion Teams service.

Among the advantages of the complex there are the following: presence of tools that enable you to create three-dimensional models for tasks of various complexity (generative design, engineering, preparation for production, creation of processing programs for numerically controlled machines, three-dimensional printers, perform research on the strength of structures and assemblies, visualization and animation of parts, etc.); the program is available for installation on the following mobile devices including smartphones and tablets, which makes it possible for teachers and students to use the full-featured version of Fusion 360.

In fact, among all the software and online services discussed above, Autodesk Fusion 360 complex is the most optimal choice for organizing the study of three-dimensional modeling under conditions of distance learning.

Further analysis concerned the tools of the selected program. In particular, issues related to the possibility of using Fusion 360 to organize the educational process under distance learning conditions were investigated. So, using Fusion Team the teacher can arrange remote work of each student, having assigned them to create a specific project, monitor the progress and etc. Students can fulfil their practical work at any time and all changes will be saved in the cloud. This feature enables you to build an individual trajectory for each student to acquire practical skills in three-dimensional modeling.

An important point is that within the framework of Fusion Team toolkit it is possible to organize a remote team to work on a project provided by the teacher. Figure 1 shows an example how to creat a team to work on a 3D model.



**Figure 1.** A screenshot of Autodesk Fusion 360 which demonstrates the study of the possibilities to organize group work when creating a three-dimensional model.

*Source: a screenshot from the own computer.*

### Summary

Adaptation of modern software tools to create three-dimensional models for the educational process is a rather complex issue that requires a non-standard and at the same time a comprehensive approach to its arrangement. Among the main ways, we have focused on, it is necessary to highlight the choice of the required software. So, in particular, in the process of feature analysis of modern cloud services with 3D graphics the Autodesk Fusion 360 product was identified as one of the most convenient three-dimensional modeling environment for studying under distance learning conditions. Its advantages were also presented as well as an example of organizing a joint workspace for students.

Further research should focus on the development of didactic methods and approaches to the organization of the distance learning process of three-dimensional modeling using Fusion 360 CAD complex.

### Bibliography

1. Aleksieiev O. M., Korotun M. M., Trebukhov D. V. (2018). The use of animation as a means to increase motivation among students of engineering disciplines. *Information Technologies and Learning Tools*, 65(3), 76-90. DOI: <https://doi.org/10.33407/itlt.v65i3.1985>.

2. Dankwort C. W., Weidlich R., Guenther B., Blaurock J. E. (2004) Engineers' CAx education—it's not only CAD. *Computer-Aided Design*. Volume 36. Issue 14. 1439 – 1450. DOI: <https://doi.org/10.1016/j.cad.2004.02.011>.
3. Dovramadjiev T. (2015) Modern accessible application of the system Blender in 3D design practice. *Technical studies*. Volume 5. Issue 4. 10 – 13. URL: [https://www.researchgate.net/publication/312033613\\_Modern\\_accessible\\_application\\_of\\_the\\_system\\_Blender\\_in\\_3D\\_design\\_practice](https://www.researchgate.net/publication/312033613_Modern_accessible_application_of_the_system_Blender_in_3D_design_practice).
4. Florkiewicz-Borkowska M. (2020) 10 ważnych zasad w nauczaniu on-line. URL: <https://portal.librus.pl/szkola/artykuly/10-zasad-nauczania-online>.
5. Khatri Preety. 3D Animation: Maya or Blender (2018). *Global Sci-Tech*. Volume 10. Issue 1. 40 – 47. DOI: <http://dx.doi.org/10.5958/2455-7110.2018.00007.1>
6. Leipold K. N. (2020, June), CAD for College: Switching to Onshape for Engineering Design Tools Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual On line. URL: <https://scholarworks.rit.edu/other/948/>.
7. Saorin J. L., De La Torre Cantero J., Díaz D. M., Lopez-Chao V. (2019) Cloud-Based Collaborative 3D Modeling to Train Engineers for the Industry 4.0. *Applied Sciences*, 9(21). DOI: <https://doi.org/10.3390/app9214559>.
8. Suhada R. T., Ariyanti S., Fajar A. V., Komalasari A. (2018) Training Autodesk Fusion 360 for teenage of senior high school graduates in improving ability in disasters. *ICCD (International Conference on Community Development)*, 1(1), 285-289. URL: <http://ppm.mercubuana.ac.id/wp-content/uploads/2019/01/ICCD-Resa-Taruna-Suhada.pdf>.
9. Suselo Th., Wünsche B. C., Luxton-Reilly A. (2019) Technologies and tools to support teaching and learning computer graphics: a literature review. *ACE '19: Proceedings of the Twenty-First Australasian Computing Education Conference*. 96 – 105. DOI: <https://doi.org/10.1145/3286960.3286972>.
10. Yen-Wen Cheng N. (1997) Teaching CAD with Language Learning Methods. URL: <https://pages.uoregon.edu/design/nywc/pdf/acadia97-lang-cheng.pdf>

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## **POTENTIAL OF MIND MAPPING USE IN THE PROCESS OF RESOURCE-BASED LEARNING OF ENGINEERING SPECIALTY STUDENTS**

### **Summary**

The paper represents the methodology and tools of the use of mind maps while teaching students of engineering specialties. Main approaches and trends concerning resource-based learning have been analyzed. Practical aspects of resource-based learning have been highlighted.

**Key words:** resource-based learning, teaching resource, mind mapping

### **Introduction**

Nowadays Ukrainian higher education is switching to the standards of European education; thus, we are facing new requirements for quality and content. Following requirements should be highlighted among the basic ones – individualization of learning, possibility to apply innovative information and communicative technologies, distant learning methods, and combination of learning and self-learning. That process requires use of modern didactic systems and means improving the available teaching methods. On the one hand, the situation is quite simple – it is necessary to improve teaching quality, develop conditions for effective processing of information by students, and create learning space; but on the other hand, volume of information is constantly increasing. Consequently, one should apply a resource-based approach to learning. That approach is aimed at comprehensive and complex use of human, technical-technological, and information resources during a learning process. Due to great amount of information as well as the need in its efficient processing, it is proposed

to use mind maps, which help solve efficiently the specified tasks. The research deals with the practice of application of a mind map technique.

### **Purpose, scope and research method**

Beginning of the analysis of the resource-based learning problems goes back to the early 1970s. Papers by the following scientists represent the research results: Brown S., Smith B. (Brown et al. 2013), Ryan S. (Ryan et al. 2013), Scott B., Freeman H., Patel D., Greene B. A., Land S. M. (Greene et al. 2000). The researchers pay great attention to resources as well as practice of information processing. They focus on the fact that learning efficiency depends not only on the access to information but also on the speed and quality of its processing being much more important factor. That is why special attention should be paid to the tools for information processing, collection, and representation. A technique of the development of mind maps helps not only solve the formulated tasks but it also can be efficient tool of thinking. It should be also emphasized that in future mind mapping can be used to control students' knowledge. The paper (Mento et al. 1999) deals with different aspects of application of mind maps; the paper (Brinkmann, 2003) is devoted to the practice of mind mapping application during the teaching of mathematical subjects while papers (Zampetakis et al. 2007) and (Liu et al. 2018) consider this technique in terms of teaching engineering and computer-related subjects respectively. Thus, the technology meets basic requirements for quality and process of education receiving.

The research objective is to study the possibility of using mind maps in the process of resource-based teaching for students of engineering specialties.

To do that, the method was tested while teaching the "Project management" subject. Teaching of that subject means formation of decision-making competencies of students. The purpose of the subject is to form students' proper practical skills of using a multipurpose toolset for the development and implementation of universal projects aimed at effective functioning and development of an enterprise. Key tasks of the subject are to provide scientific and methodological basis of students' mastering the basic tools of project management in organizations. As a result of subject learning, students are to master skills concerning the development of strategies for efficient project solutions. A mind mapping technique was used both during the subject teaching and during the knowledge control.

## **Results and discussion**

Thus, in terms of resource-based learning, the emphasis is put on the autonomous learning, i.e. a student takes responsibility for his/her learning. According to this practice, there are following main mechanisms that help achieve the results: increasing interest for learning, active and independent performance of tasks, transfer of the autonomy of student's behaviour while studying, i.e. the process is focused on the obtaining of skills being useful in everyday life. The uniqueness of resource-based learning is in the multiple and diverse (in terms of their use) educational resources to meet different academic needs.

The resource-based learning means certain "flexibility" when students can study both individually and collectively. Moreover, the main idea here is that knowledge is not obtained but "is being built" during a learning process, according to a constructivist didactics (theory of learning). I am sure that while mastering some technical subjects, one should give preference to the individualistic approach to learning as the learning efficiency depends on the personal interpretation of knowledge, which makes it possible to consider the learning process from different viewpoints and find the sense of learning. The advantage of this learning approach is in the fact that it is possible to apply modern digital information resources. As the represented characteristics show, the indicated type of didactic approach meets main needs; however, there was a need in the tool for its implementation.

The "Project management" course was decided to involve the application of mind mapping. Mind mapping is a technique for visualization of thinking (Fig.1). There are numerous methods of using mind maps, e.g. they can be used to fix, understand, and memorize the content of some text; to generate and write down some ideas; to gain insight into some new topic; and to prepare for making some decisions. Mind maps are great tools of thinking and creation of innovative products.

Mind mapping has certain advantages: visual expression, compactness, associativity, space for creativity, interpretability, and available cause and effect relations.



**Figure 1. Example of a mind map**

Source: <https://www.mindmapping.com/>

It should be noted that mind maps were used not only during lectures but as the form to represent the performed tasks and to control quality of knowledge digestion. According to standard practice of mind mapping, the key idea, being in the middle, is complemented by following branching and development of cause and effect relations. Use of such an approach while taking notes is much simpler than a “linear” form of the main material representation; besides, mind mapping performed by students help identify their weak points during their knowledge acquisition. The mind maps developed by students help find some problems in their subject learning; that also favours students’ skills of independent learning with the help of reference and methodological materials, develops their personal qualities, and stimulates spatial thinking. It should be stressed that this tool for delivering the basic material has one great advantage – it means certain levels and orderliness, which, in its turn, corresponds to “branch-type” thinking of people, i.e. the tool is in compliance with the main processes of information perception.

In practice, mind maps were used as follows:

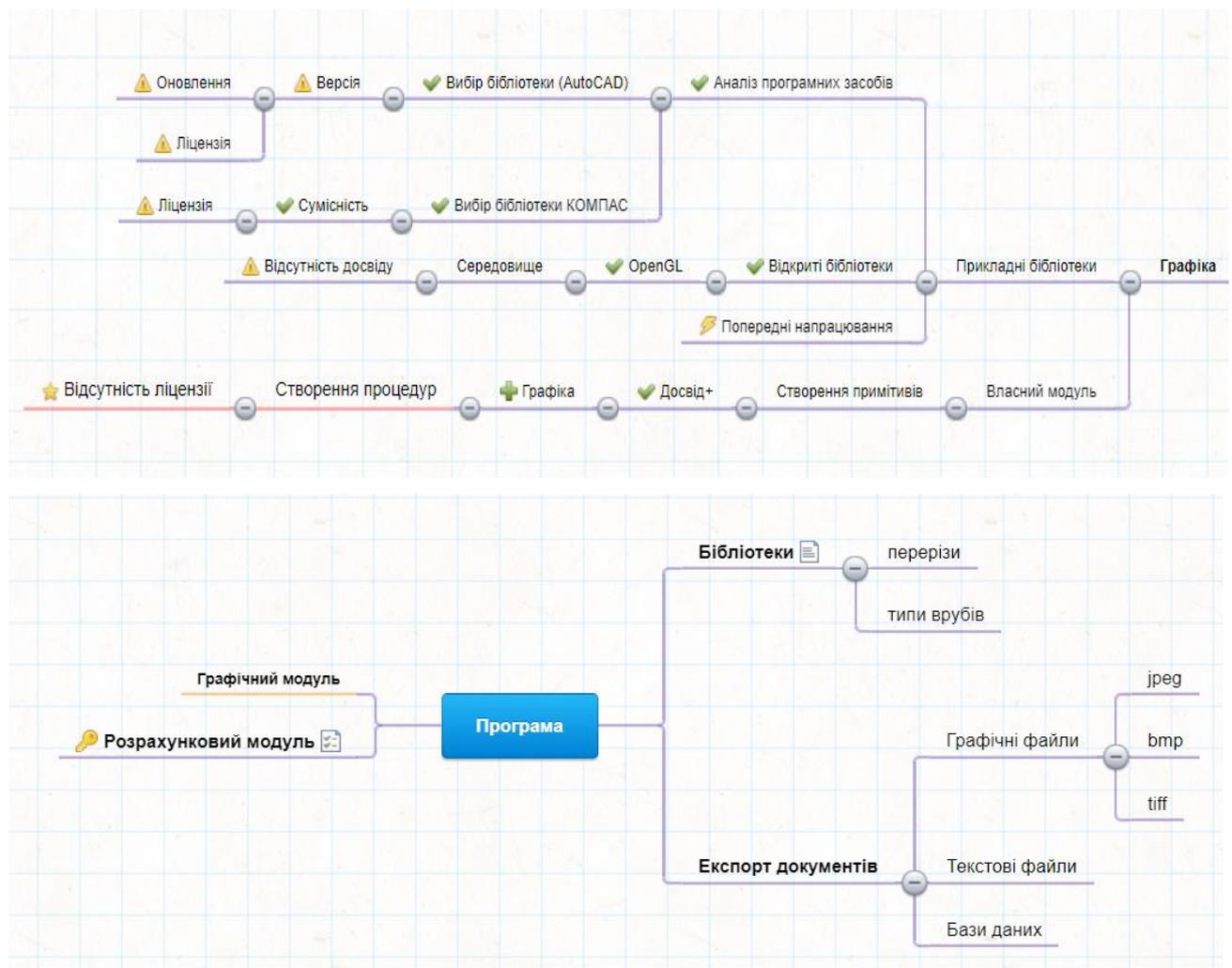
Firstly, mind maps were used during lecture delivering when the notes were represented as mind maps; a central concept was represented in the middle of the “map”, the cause and effect relations between the processes were built as “branches”. It should be noted that this practice helps train students for industrial activity as they understand the relations between the knowledge obtained previously in the framework of their specialization, i.e. they look at each process wholistically, not from the viewpoint of some separate subject.

Secondly, mind mapping was applied during current control of knowledge acquisition. It was proposed to answer the questions in the form of mind maps. That helped identify timely the content blocks, which learning would require additional students' efforts.

Thirdly, it was used during group work. Students were offered to create some real innovative product. In this context, one group of students acted as a "project" team dealing with the project development; another group acted as the "orderers", being consumers of the innovative product.

The task of a project team was to propose the project, which would get the required investment; moreover, time-related and financial costs had to be minimal. The task of a team of "orderers" was to get a product with the greatest functional potential with minimal time for training and familiarization. Thus, the first group acquired knowledge concerning the creation of innovative products, development of real projects, and interaction with consumers while the second group got skills of negotiating, formation of a technical design assignment, and quality control of the implemented solutions. Mind maps were used as the decision-making tool. Basing on the specified volume of financing and possibilities, the first group chose software development as their project activity. The group members assigned roles according to the level of knowledge and skills: software developer, engineer, negotiation leader. The second group had such roles as owner, specialist, and controller. In addition, for a case study to have more similarity with a real-life situation, certain restrictions were imposed on the "project" group – their project and products should be unique as the market already has a competitive company with their own product. The restrictions for "orderers" were as follows: their product is innovative, so they should take into consideration all the risks of information leak.

The results were considered to be effective when the "project" group could propose the ideas of their project in the form of advantage over the known one; in terms of the "orderers" group, it was important to reach economically feasible solution in time. The "game" includes discussions; the groups were proposing their own project management solutions. Consequently, such students' skills as development of an innovative product and critical thinking were being formed; knowledge of their specialty-related subjects was being deepened as well. Moreover, each student could get the insight into the project structure, distribution of duties in the group, and could learn how to form a technical design assignment for a project. The task was performed in the form of the represented mind map (Fig. 2).



**Figure 2. Fragments of the mind maps**  
*Source: developed by the author*

Fig. 2 demonstrates a fragment of a mind map. During stage one of the task performance, the “project” group identified the weakest points in its project and started working to eliminate them. Finally, that helped them reach efficient solution in the form of a newly created project, differing from the known analogues by the fact that it had its own graphic module. That helped form certain “advantage” over the competitors; it meant saving costs on purchasing third-party licensed software.

Thus, such a case study has helped students deepen their knowledge of economic substantiation of innovative solutions, project management, production sphere management, and marketing research.

Moreover, the tool was used while writing scientific papers. It was proposed to put the research title in the centre while branching was represented by the main content blocks of the

research: analysis, methods, and discussion results. Thus, students' competencies of carrying out scientific and research work as well as generalization and systematization of the obtained results were formed.

At the end of the course, the students were questioned as for their material acquisition. The students pointed out the following:

- Mind maps are more efficient as the means of taking notes of the material. You spend less time for note taking; you have more time for visual material perception.
- Mind maps help renew faster the previously obtained knowledge.
- Mind maps make it possible to trace the interrelation between subjects in terms of one specialization. Consequently, the students have better training for their future professional activity.
- Mind maps are efficient tools of group communication when each participant can be responsible for a certain block. In this context, you can trace in time the state of duties being performed.
- The available associative and graphic images stimulate creativity and unlock individuality.

Thus, use of mind mapping during the academic process is in compliance with a resource-based approach while teaching students of engineering specialties.

### **Summary**

During the research, main advantages and mechanisms of resource-based learning have been considered. It has been proposed to apply mind maps while teaching subjects for students of engineering specialties. Main sphere of the tool while studying the "Project management" subject have been studied; aspects of practical application of mind mapping has been described. It has been proved that the mind mapping technique is efficient both in students' educational and scientific and research activity.

### **Bibliography**

1. Brown, Sally, and Brenda Smith. Resource based learning. Routledge, 2013.
2. Ryan, Steve, et al. The virtual university: The internet and resource-based learning. Routledge, 2013.

3. Greene, Barbara A., and Susan M. Land. "A qualitative analysis of scaffolding use in a resource-based learning environment involving the World Wide Web." *Journal of Educational Computing Research* 23.2 (2000): 151-179.
4. Mento, Anthony J., Patrick Martinelli, and Raymond M. Jones. "Mind mapping in executive education: applications and outcomes." *Journal of Management Development* (1999).
5. Brinkmann, Astrid. "Graphical knowledge display–mind mapping and concept mapping as efficient tools in mathematics education." *Mathematics Education Review* 16.4 (2003): 35-48.
6. Zampetakis, Leonidas A., Loukas Tsironis, and Vassilis Moustakis. "Creativity development in engineering education: The case of mind mapping." *Journal of Management Development* (2007).
7. Liu, Yizhen, Yingxin Tong, and Yuqi Yang. "The application of mind mapping into college computer programming teaching." *Procedia Computer Science* 129 (2018): 66-70.

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## **LEGAL CLINICAL EDUCATION AS AN IMPORTANT TOOL FOR THE FORMATION OF THE FUTURE LAWYERS' PROFESSIONAL COMPETENCIES**

### **Summary**

The article is dedicated to issues of the formation of the future lawyers' professional competencies with help of such an important tool as legal clinical education. The author identifies that one of the priority tasks of the modern higher law education is practical preparation which is the process of targeting educational activities in higher education institutions on the results of future professional activities of applicants.

This article identifies forms of free primary legal aid that is provided by consultants of legal clinic. The author highlights that use of such form of education as legal clinical education helps to form the future lawyer's ability to advise on legal issues, ability to identify possible ways to protect client's rights and interests in accordance with professional ethics, as well as non-disclosure of personal data and confidential information. In addition, the applicant should acquire the skills and abilities to independently prepare a draft of law enforcement act.

**Keywords:** legal clinical education, legal clinic, professional competencies, consulting, client, preparation of procedural documents.

### **Introduction**

Higher education is an important tool for the development of society, and changes in education system, in particular legal one, its quality and content, management of higher education, directly affect the life of human civilisations in general as well as individual countries in particular. Successful realisation of policy of development of the education system and bringing it to European standards in the context of globalisation directly depends on the quality of the education. The process of entry of the national higher education system into the European educational space, the unified Bologna system, has determined the need and

importance of practical training of future specialists, and the quality of higher education should become a priority of state policy in Ukraine. The one of priority tasks of modern higher education is exactly practical preparation which is process of targeting educational activity in higher education institution on result of the future professional activity of applicants. That's why today legal clinical education has a big influence on development of the law education in Ukraine and is an important tool for formation of future lawyers` professional competencies.

### **Purpose, subject and research methods**

**The purpose of this article** is researching of legal clinic education's influence on formation of future lawyers` professional competencies of legal culture, analysis of legal clinics` activity methods and principles.

**The subject** of research is relations in the field of formation of professional competencies of future lawyers by means of legal clinical education.

**Methodology:** adherence to the principle of objectivity contributed to the consistent disclosure of the features, content and consequences of the introduction of legal clinical education in the preparation of law specialists. The application of methods of analysis and comparative and empirical synthesis allowed to trace the legal clinical education's influence on the formation of future lawyers` professional competencies.

In recent years, A. Azarov, V. Baranov, V. Boitsova, R. Vasiliev, N. Vitruk, L. Voevodin, L. Voskobitova, S. Degtyarev, O. Lukasheva, L. Mikhailova, V. Moldovan, Yu. Tikhomirov, V. Tumanov, D. Shabelnikov. Andriy Halay researched the activities of legal clinics and their associations, studied ways to improve their organization and functioning (Halay 2014: 39-48). M. Lodzhuk's dissertation research is devoted to the legal regulation of legal clinics in Ukraine (Lodzhuk 2014: 26).

### **Results of research**

Free legal aid is a unique opportunity for higher education applicants to gain experience of practical work and also to check their knowledge gained in educational process, to get skills and establish contacts required for future job in specialty. For citizens of Ukraine who need the support and protection of state such help is an opportunity to get professional assistance in protecting their rights and legitimate interests. For higher education institution the use of legal clinical education is a benchmark of educational programs` quality which shows its strengths and weakness.

Today legal clinical education is identified by Ministry of Education and Science of Ukraine as part of the educational process of the preparation of future lawyers. Along with separate practices` bases (judicial and law enforcement agencies, enterprises, institutions, organisations, etc.) that are not subordinated to higher education institutions, legal clinical education is an important tool that can ensure the continuity of the practice of applicants in the future profession. The specifics of the legal clinic in higher education institution is constant involvement of applicants in legal assistance to clients, usually during the relevant school year, while using all legal ways to realise and protect rights, freedoms and legitimate interests. It is important to note that the vast majority of the above units of higher education institutions in Ukraine practices the classical system of gaining professional skills of a lawyer-practitioner, especially preparation of legal advice, procedural documents as well as representation of client`s interests.

Consider the legal clinical education`s influence on formation of professional legal culture of future lawyers on the example of the legal clinic "Pravosvit" of Ivan Franko Zhytomyr State University. The legal clinic is a structural subdivision of Zhytomyr State University and was established as a base for practical education and internships for higher education applicants.

In its activities, the Legal Clinic "Pravosvit" is guided by the Constitution of Ukraine, the Law of Ukraine "On Free Legal Aid" of July 8, 2011 (Law of Ukraine 2011), the Law of Ukraine "On Higher Education" (Law of Ukraine 2001), Decree of the President of Ukraine of October 18, 2001 № 992 "On the National Program of Legal Education of the Population" (Decree of the President of Ukraine 2001), Statute of Ivan Franko Zhytomyr State University (Statute 2021), Order of the Ministry of Education and Science of Ukraine № 592 of August 3, 2006 №592 of August 3, 2006 (Order of the Ministry of Education and Science of Ukraine 2006), the Standard of Legal Clinics of Ukraine of November 16, 2003 (standard 2003) and the Regulation "On Legal Approval of the Higher Educational Institution of Ukraine" Law Clinic "Pravosvit" Ivan Franko Zhytomyr State University, approved by order of the Rector of the University.

In M. Lodzuk`s opinion, the subject of law regulation of the legal clinics activity in Ukraine is social relations that arise in the process of using the latter as bases for higher education students and other types of practice. (Lodzuk 2014: 14)

In accordance with the provisions of the order of the Ministry of Education and Science of Ukraine № 592 of August 3, 2006 "On approval of the Standard Regulations on the legal

clinic of higher education in Ukraine” № 592 of August 3, 2006 legal clinic is defined as a “structural unit of higher education III- IV levels of accreditation, which trains specialists in the field of "Law" and is created as a basis for practical training and internships for senior students”. The concept of "legal clinic" defines ways to implement the idea of socially useful, continuous practical (legal clinical) education which helps to address issues of national importance such as legal education, as well as assistance to socially disadvantaged people in our country.

Legal clinic “Pravosvit” is base for practical education of higher education applicants of Ivan Franko Zhytomyr State University. Applicants-advisers take part in its activity while gaining professional skills, in particular they learn how to apply theoretical knowledge in practice, gain experience in practical work in law sphere which is important component of formation of qualified lawyer.

Educational components of legal clinical education are a system of forms and methods of its activity which are closely related to main tasks of higher legal education in preparing specialist-lawyer and involved in practical preparation of educational process of higher education institution. All components of the activity of the legal clinic "Pravosvit", as well as other clinics of higher education institutions are educational elements (components), because they are carried out by students during education to achieve the appropriate goal. However, it should be noted that only those forms and methods that are directly related to the main components of the educational activities of a higher education institution can be considered as educational components of legal clinical education.

The main work forms in legal clinic “Pravosvit” are:

- individual work with higher education applicant;
- acquisition of general and special competencies through the mechanism of educational practice "Fundamentals of legal clinical practice»;
- systematic forms and means of both formal and non-formal education (workshops, specialized seminars and trainings, optional classes, briefings, mechanisms for selection of participants-consultants and mentoring, etc.)
- forms of interuniversity, national and international educational activities within the legal clinical movement;
- other forms of individual and group work of higher education applicants to acquire skills of competencies of future professional activity, in particular, outside the educational process (for example, research).

Effective organisation and proper functioning of any legal clinic is impossible without proper regulation of its activities at the local level, in particular internal acts on the organization of work.

The main local internal acts on the organisation of activity of legal clinic "Pravosvit" of Ivan Franko Zhytomyr State University as well as relevant clinics under higher education institutions in Ukraine are:

1. Charter of Ivan Franko Zhytomyr State University (institution of higher education);
2. Regulations on the legal clinic "Pravosvit" of Ivan Franko Zhytomyr State University;
3. Regulations on internships for applicants for higher education;
4. The schedule of the legal clinic "Pravosvit";
5. Job descriptions of the staff of the legal clinic "Pravosvit";
6. Ethical rules of the legal clinic (may be part of the regulations on the legal clinic);
7. Agreements (memoranda) on cooperation, etc.

Legal clinic "Pravosvit" of Ivan Franko Zhytomyr State University provides services in such key areas as civil, labor, family, land, administrative, criminal law. A special demand among such a category of clients of the clinic as university students is the organisation of educational activities, the procedure for deferment of military service, problems of family and labor relations, and so on.

The program of legal clinic's activity consists of the following components: educational component (educational practice "Fundamentals of legal clinical practice") and practical part (provision of legal services). The practical part of the legal clinic is organised by rotation under the guidance of teachers. Such work allows higher education students to get specific experience that they gain both in the internship and during the school year.

It should be noted that there is no single position in the choice of the concept of a special educational component or educational practice regarding the activities of a legal clinic in Ukrainian higher education institutions. In such way, there is a number of institutions along with Ivan Franko Zhytomyr State University, in particular Lesya Ukrainka Volyn National University, Kyiv-Mohyla Academy National University, etc., emphasised its name on legal practice. However, the vast majority of institutions chose the name of the course, respectively - "Fundamentals of legal clinical practice", "Fundamentals of legal clinics in Ukraine", "Fundamentals of legal clinical education" and so on.

The formation and development of acquired general and special competencies in this area is achieved through interdisciplinary links in the educational components of the

professional cycle, in particular the course of legal clinical practice. It is necessary to introduce certain components of this course to other educational components included in the curriculum:

1. Compulsory general educational components (eg "Legal Deontology").
2. Educational components dedicated to the issues of judicial and law enforcement activities ("Judicial and law enforcement bodies of Ukraine", "Notary and Bar of Ukraine", "Judiciary of Ukraine", etc.).
3. Sectoral legal educational components ("Criminal proceedings", "Civil proceedings", "Administrative proceedings").
4. Other educational practices or applied special courses (educational practice "Documentary support of legal activity").

Analysing the experience of legal clinics of higher education institutions in Ukraine, we can conclude that the participation of applicants for higher education in the legal clinic has positive results in the training of applicants, as they provide legal advice, procedural documents, representation of individual citizens in judicial and administrative bodies.

Applicants` internships in a legal clinic must be certified by control documents, which also have certain features. The internship, which will take place in the legal clinic at the same time as other bases of practice (courts, prosecutors, other law enforcement agencies, etc.), can be made out of the usual documents for higher education institutions (individual plan, practice diary, report card , practice materials, applications, etc.). However, it is the head of the educational practice who chooses the reporting form for this type of practice, defining it in the program of the relevant educational practice.

For the practice that will take place in the legal clinic without separation from the educational process, its documentation may have a different form. It is important to have a diary of an internship in a legal clinic as to perform the tasks of such a specific internship which lasts for a long period simultaneously with the educational process. Another type of reporting is documenting the consultations provided, cases resolved by the applicant-trainee in a legal clinic during the internship. Therefore, in our opinion, it is expedient and quite convenient to use such a form as an individual journal of records of consultations, drafted procedural documents or resolved cases. Such a journal will generally correspond to the journal of counseling provided in legal clinics, but it will reflect the individual achievements of such a trainee.

As a rule, various components of a lawyer's practical activity are submitted to the report to confirm the implementation of the plan. Such supporting materials in the completed form,

which can actually be seen in the legal clinic, are written legal advice, procedural documents for the proceedings (cases), materials of the developed legal education event as well as materials that demonstrate other completed creative tasks (scientific or popular science articles), presentations, analytical materials, etc.). Such documents can have a large volume, and therefore they can be displayed in electronic form (copies of the main content sheets), in particular, the archive folder, a fragment of scientific work and so on.

Modern legal clinical education in Ukrainian higher education institutions generally meets international and European standards of legal clinics. In particular, various methods, technologies and pedagogical techniques are used during classes at the "Pravosvit" legal clinic. However, the priority methods in teaching professional skills in a legal clinic are given to interactive methods. Such methods, approaches, techniques, technologies should be used to create an environment for the development and demonstration of professional legal competencies. These include both creative (problem) tasks, work in small groups, and invitations to legal practitioners, as well as social projects, volunteer legal activities, Socratic dialogue, position loans.

Role-playing games and technologies for conducting them, debates are important tools in simulating a court hearing. An interesting method is the imitation of a simplified court hearing, the so-called court on its own behalf. Commenting techniques (feedback), working in pairs are important during counseling. Of course, one should not underestimate the importance of such methods as mediation, discussion, negotiations, "talk shows", openwork saw, circle of ideas, etc.

The main forms of legal education activities of the legal clinic "Pravosvit" are:

- organisation and holding of various legal and educational events for applicants for higher education of the University of non-legal specialties and students of secondary schools of Zhytomyr and Zhytomyr region;
- organisation and holding of scientific conferences of different levels, forums, seminars, round tables, trainings, workshops, meetings. The purpose of such measures is to increase the level of legal awareness and legal culture of citizens, in particular, applicants-consultants of the legal clinic;
- development and distribution of legal education materials, booklets, memorabilia, etc.;
- participation in relevant programs and projects of state and public organisations.

In the process of realisation of its tasks the legal clinic closely cooperates with the system of free legal aid of the Zhytomyr region, JSC Lawyers & Mediators, the organization

UNBA NextGen - the young generation of lawyers. In addition, there is a program "Interesting Jurisprudence", in which applicants-consultants conduct training on the basics of Ukrainian law for students of secondary schools.

Legal education is an integral part of the activities of the Legal Clinic "Pravosvit" as the clinic acts as an important tool as a mediator between legal professionals and the public.

The experience of the legal clinic "Pravosvit" makes it possible to identify the most common forms of free primary legal aid:

- 1) legal information and consulting;
- 2) preparation of procedural documents;
- 3) legal representation;
- 4) legal education activities
- 5) scientific activity in the legal field.

Legal clinical education in higher education institutions of Ukraine is a tool that provides general and special competencies, in particular, special competencies 14 and 15, provided by the Standard of Higher Education of Ukraine: first (bachelor) level of higher education, field of knowledge 08 "Law", specialty 081 "Law", approved by the order of 12.12.2018 № 1379 of the Ministry of Education and Science of Ukraine (order of the Ministry of Education and Science of Ukraine 2018).

The above competencies establish that the educational program should form in the future lawyer the ability to advise on legal issues, the ability to identify possible ways to protect the rights and interests of the client ,in accordance with the requirements of professional ethics, as well as non-disclosure of personal data and confidential information. In addition, the applicant must acquire the skills and abilities to independently prepare a draft law enforcement act.

The legal clinic can be considered as a separate, specific social environment that has a specific impact on the process of formation of professional consciousness and legal culture of its participants. Each legal clinic now adopts its own code of ethics which sets out the basic principles, rights and responsibilities that apply to all clinic staff. It can also be concluded that by establishing certain rules of conduct for members of the legal clinic, based on the principles of morality and law, thus clinics contribute to the formation of legal awareness and legal culture, as well as increase the level of legal activity (Aksonova 2013: P. 6).

### Conclusion

All in all, we can conclude that modernisation of the higher education system on a qualitatively new basis, involvement and development of new teaching methods will increase the competitiveness of Ukrainian higher education in both national and international labor markets. Given the importance of legal education for the welfare of the state and its population, society itself should promote its development, including by changing the funding mechanism to ensure the possibility of individual educational and professional growth of the individual as well as its academic, professional and social characteristics.

The main tasks of management and control in the field of higher education, in particular, legal is to continue implementing state policy to bring the national higher education system to European standards and complete European integration processes in this area, improving the quality control system of higher education and educational activities. An important aspect of such a policy should be to ensure the broad legal personality of higher education institutions, in particular by providing the opportunity to dispose of the material base.

### Bibliography

1. Olena Aksonova. (2013). Legal educational influence of legal clinics on the formation of legal culture of future lawyers. *Scientific notes of the Tauride National University. VI Vernadsky Series "Legal Sciences", Volume 26 (65), № 2-1 (Part 1): 3-9.*
2. Andrew Galay. (2014). Formation of legal clinical education in Ukraine and in some other countries of the world. *Scientific Journal of the National Academy of the Prosecutor's Office of Ukraine, № 4: 39-48.*
3. Maxim Lodzhuk (2014). Legal regulation of legal clinics in Ukraine: general theoretical research, (author's ref. Dissertation of legal sciences: 12.00.01), NU "Odessa Law Academy", Odessa, 26.
4. The Constitution of Ukraine. (1996). Constitution of Ukraine, June 28. Official site of the Verkhovna Rada of Ukraine <https://zakon.rada.gov.ua/laws/show/254%D0%BA/96-%D0%B2%D1%80#Text> (accessed May 25, 2021)
5. Law of Ukraine. (2011). About free legal aid, June 2. Official site of the Verkhovna Rada of Ukraine, <https://zakon.rada.gov.ua/laws/show/3460-17#Text> (accessed May 25, 2021)
6. Law of Ukraine. (2014). About higher education, July 1. Official site of the Verkhovna Rada of Ukraine <https://zakon.rada.gov.ua/laws/show/1556-18#Text> (accessed May 25, 2021).

7. Charter of Ivan Franko Zhytomyr State University. (2021). [https://zu.edu.ua/offic/statut\\_zu\\_2020.pdf](https://zu.edu.ua/offic/statut_zu_2020.pdf) (accessed May 25, 2021).
8. Order of the Ministry of Education and Science of Ukraine. (2006). On approval of the Standard Regulations on the Legal Clinic of the Higher Educational Institution of Ukraine, August 3. Official Gazette of Ukraine. 2006. № 32: 680.
9. Decree of the President of Ukraine. (2001). About the National program of legal education of the population, October 18. Official site of the Verkhovna Rada of Ukraine, <https://zakon.rada.gov.ua/laws/show/992/2001#Text> (accessed May 28, 2021).
10. Standards of legal clinics of Ukraine from 16.11.2003 (as amended and supplemented from 25.08.2005): Association of legal clinics of Ukraine, <http://pravo.prostir.ua>. (accessed May 29, 2021).
11. Igor Senchak. (2010). The influence of legal clinics on the formation of the professional level and legal culture of young professionals. Journal of the National University "Ostroh Academy". Law Series, № 2: 1 –1 1.
12. Order of the Ministry of Education and Science of Ukraine. (2018). On approval of the standard of higher education of Ukraine: the first (bachelor's) level of higher education, field of knowledge 08 "Law", specialty 081 "Law", December 12. Official site of the Verkhovna Rada of Ukraine, <https://mon.gov.ua/storage/app/media/vishcha-osvita/zatverdzeni%20standarty/12/21/081-pravo-bakalavr.pdf> (accessed May 29, 2021).

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## **SCIENTIFIC ACTIVITY IN EDUCATIONAL INSTITUTIONS**

### **Summary**

The article considers the role of scientific activity of a teacher in educational institutions. The scientific activity of the teacher, constant search and realization of educational innovations give the chance to use in the activity a wide range of professional researches. The formation of research competence is a necessary component in the activities of scientific and pedagogical staff in order to conduct research and implement their results in the educational process.

**Key words:** scientific activity, competence, educational institutions.

### **Introduction**

Article 65 of the Law of Ukraine "On Higher Education" states that scientific, scientific-technical and innovative activities in higher educational institutions are an integral part of educational activities and are conducted to integrate scientific, educational and industrial activities in the higher education system. Carrying out scientific and scientific-technical activity by universities, academies, institutes is obligatory.

The main goal is to acquire new scientific knowledge by conducting research and development and directing them to create and implement new competitive technologies, types of equipment, materials, etc. to ensure the innovative development of society, training of innovative type.

The intellectual platform of scientific and innovative development of the country are higher educational institutions, which have a strong scientific and personnel potential for scientific and technical activities [4].

"University science" is considered as a field that includes scientific and scientific-technical activities of universities and other educational institutions of the IV level of accreditation, which occupies a special place in science, as it is a unique complex that plays a crucial role in the formation and development of scientific and scientific-pedagogical staff of the country, and carries out scientific and research activities with the involvement of students

and scientists who have proven to be the most talented at the national and international levels [7].

### **Results of the research**

The development of the domestic educational system is characterized by increasing attention to the inner potential of man, the creation of an educational environment that promotes creative self-development of the individual.

In educational institutions there is a need to train intellectual, enterprising professionals with developed creative thinking, accompanied by dissatisfaction with the educational process and the organization of scientific work, no attention is paid to independent activity of researchers in the development of professional qualities and abilities.

Scientific activity of the educational institution includes:

- research work;
- scientific and methodical work;
- development of scientific schools of the university;
- training of scientific and scientific-pedagogical staff of the highest qualification;
- scientific work of young scientists and students;
- international scientific and technical cooperation;
- participation of teaching staff in scientific activities.

The main tasks of scientific activity of higher educational institutions are [8]:

- 1) obtaining competitive scientific and scientific-applied results;
- 2) application of new scientific, scientific and technical knowledge during the training of specialists with higher education;
- 3) formation of modern scientific personnel potential, able to ensure the development and implementation of innovative scientific developments.

Scientific activity of educational institutions is based on the following principles:

- preservation and development of scientific schools of the educational institution;
- providing an organic link between research and the educational process;
- support and stimulation in the relevant field of basic, applied research, research work in priority areas of science and technology;
- implementation in conjunction with other educational institutions, research institutions, academies of sciences of scientific programs in relevant areas, which ensures the development of the country;

- promoting the development of international cooperation.

The effectiveness of scientific activity today is assessed by the degree of relevance of research by various research and development works: funds, grant support, government programs, etc.

In order to evaluate any scientific activity it is necessary to be guided by the following rules (criteria):

- efficiency of science;
- the main tasks of scientific activity that contribute to their effectiveness;
- the transition from empirical observations of phenomena to the construction of abstract models;
- when studying large systems it is necessary to use mathematical and verbal descriptions of phenomena;
- monitoring of scientific activity (planning, organization, motivation, control, which are characterized by cyclic repetition), etc.

An important component of the professional activity of teachers is research, which directs their creative search for the development of new theoretical concepts, effective methods and educational technologies and more. The introduction of the results of research activities of teachers in the practice of higher education allows to raise the level of professional training of future professionals to a qualitatively new level. As you know, in today's conditions of higher education teachers have significant opportunities for research. But for its competent conduct the teacher must acquire the necessary knowledge and skills [5]. Therefore, in educational practice, special attention is paid to research components, which are gradually becoming a very important component of pedagogical activities of every teacher. A modern educational institution provides ample opportunities for the teacher to choose the form of conducting his own research: work on individual scientific work, participation in research and experimental work, dissertation research.

Research skills of the teacher are formed in accordance with the basic levels of the education system (praxiological, technological, methodological, methodological) [6].

The praxiological level is the basis for the formation of research skills, which are formed during the mastering of the fundamental level of professional training in higher education institutions. The technological level provides the formation of technical, organizational and communicative research skills. The methodical level provides: formation of definition of the purposes and tasks of a technique; analysis of educational material in accordance with the

purpose of training; literature analysis; choice of content, methods, means and forms of teaching, adequate to the goals of the methodology; implementation of the developed methodology in practice; exercising control and self-control; analysis of the results of its activities; making changes to the developed methodology; registration of results in the form of the idea, the abstract, the report. These skills are formed in the study of pedagogical and methodological disciplines. The methodological level implies the formation of research skills of all types at a higher, qualitative level. These include the following research skills: analysis of the pedagogical situation; highlighting problems in professional activities; goal setting and diagnostic tasks of pedagogical technology; choice of content, forms, methods, means of individual learning trajectory; forecasting the outcome of the use of pedagogical technology; coordination of individual creative efforts with the work of the teaching staff; obtaining a new, socially significant result; registration of results in the form of theses, articles, master's work [1].

Research work in modern higher education institutions in organizational, substantive and effective terms has its own specifics and involves solving specific problems, the most important of which are: providing fundamental, theoretical, experimental applied research in various fields of science in accordance with the plans of the educational institution; training of highly qualified personnel; connection of research work with the educational process of modern higher education institutions; introduction of scientific developments, first of all teaching of educational material in practice, higher school, and also in various branches of science and education; involvement of students in research work [2].

The activity of a teacher of a higher educational institution includes several equivalent components: teaching (educational), educational, scientific and methodological activities.

Teaching and research activities are combined. This means that their improvement is the only process in which the teacher is the main subject. The role of the institution of higher education (rectorate, scientists of the institution, department, library of the institution of education) is to provide the necessary factors and conditions for this. This versatility of research determines its tasks, which can be divided into three groups: 1) related to changes in the content and technology of education based on the development of scientific knowledge; 2) aimed at increasing the scientific competence of the teacher as a subject of pedagogical activity; 3) those aimed at improving the student's personality as a co-subject of professional training [3].

Scientific activity in educational institutions in combination with teaching activities provide high qualification of the teaching staff, advanced quality of education, reproduction of

scientific personnel in the education system, etc. The most important task facing higher education in all developed countries is to establish a rational relationship between teaching and research.

It is necessary to distinguish between own research and the use of its results in the teaching process. Teachers must distinguish between methods of scientific study and methods of teaching. According to our data, according to students (64.8% of respondents noted), the high status of the teacher will be stable if the latter is also a research scientist (Fig. 1). Students believe that the research work of the teacher increases his scientific level of knowledge, develops creative potential, enriches the inner world of the teacher. Most students believe that a teacher should combine scientific and pedagogical activities in their professional work. These two activities combine the following qualities: attentiveness, creativity, patience, inspiration, cultural level, responsibility, erudition, purposefulness, interest in work and others. A teacher who conducts scientific work is always successful.

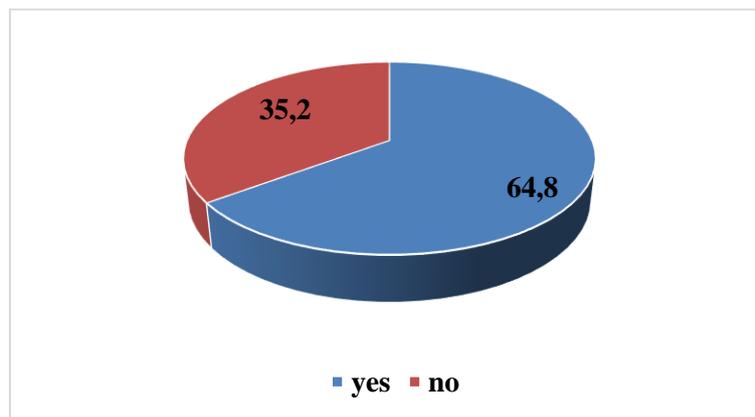


Fig. 1. The opinion of students on the combination of teachers of educational institutions of scientific and pedagogical activities in their professional work

### Conclusions

Thus, scientific activity in a university is a complex activity that contains professional-branch, professional-pedagogical and general scientific components. If the professional and pedagogical component today has a serious scientific and pedagogical support, then the general scientific and, especially, professional and branch components of the scientific activity of an employee of higher education institutions require a thorough methodological study. The development of research activities of teachers of educational institutions is relevant for the following reasons: the competence approach to consideration of ways of formation of professional competence of teachers of higher education institutions provides consideration of

research activity; development of the interest of the teaching staff in conducting scientific research and experimental work in their educational institutions; during the accreditation of educational programs, teachers are recommended to present a portfolio, one of the items of which may be the research work of the teacher.

### Literature

1. Bopko I. Z. 2014a. Scientific activity of a high school teacher in the conditions of the Bologna process. *Bulletin of the National Academy of the State Border Guard Service of Ukraine. Pedagogical sciences*. Vol. 4. (in Ukrainian)
2. Bopko I. Z. 2014b. Features and problems of scientific activity of a university lecturer. Collection of scientific works of the National Academy of the State Border Guard Service of Ukraine. *Pedagogical and psychological sciences*. № 3 (72). P. 44–52. (in Ukrainian)
3. Didenko I. M. 2017. Research activity of a university teacher: library aspect. *Bulletin of the KhSA*. Vol. 50. P. 166–176. (in Ukrainian)
4. Zhuk L. V. 2017. Research in higher education: essence, meaning and prospects. URL: <http://science.lpnu.ua/sites/default/files/journal-paper/2018/mar/9672/ilovepdfcom-146-153.pdf> (appeal date: 21.06.21) (in Ukrainian)
5. Zimnyaya I. A., Shashenkova E. A. 2001. Research work as a specific type of human activity. Izhevsk. 98 p. (in Russian)
6. Romanov P. Yu. 2003. Formation of research skills of students in the system of continuous pedagogical education: dis. at the request of scientists. degrees of Dr. ped. Science: 13.00.08. Magnitogorsk. 385 c. (in Russian)
7. Yasnytska N. 2016. Some aspects of public administration of scientific activities of higher education institutions in terms of reforming the industry. URL: [http://lvivacademy.com/vidavnistvo\\_1/visnyk16/fail/Jasnytska.pdf](http://lvivacademy.com/vidavnistvo_1/visnyk16/fail/Jasnytska.pdf) (appeal date: 21.06.21) (in Ukrainian)
8. [https://pidru4niki.com/86551/menedzhment/naukova\\_robota\\_vischomu\\_navchalnomu\\_zakladi](https://pidru4niki.com/86551/menedzhment/naukova_robota_vischomu_navchalnomu_zakladi) (appeal date: 21.06.21)

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## **INFLUENCE OF MILITARY ACTIONS IN THE EASTERN UKRAINE ON FORMATION OF VALUE ORIENTATIONS OF STUDENT YOUTH**

### **Summary**

The military conflict that deployed in the Eastern Ukraine in spring 2014 and its consequences are tragically affecting all spheres of public life. War disrupts the usual rhythm of life of the modern youth, leads to moral trauma and complicates realization of their aspirations and values. The purpose of the article was to assess military actions in the Eastern Ukraine by the student community and their impact on formation of value orientation of student youth. Data for publication were obtained on the basis of a questionnaire consisting of 19 questions by surveying 140 people. All respondents are students of Ternopil Ivan Puluj National Technical University.

**Key words:** value orientations, student youth, war, peace.

### **Introduction**

The unpredictable and unexpected aggression of Russian Federation against Ukraine, military conflict and hostilities that have been lasting in the Eastern Ukraine for eight years long, have unfortunately become an integral part of the daily life of Ukrainians. The tense socio-political situation and continuation of the armed conflict have a negative impact on the student youth not only of the occupied territories, but also on all young citizens of our country. In addition to the most obvious consequences of the military conflict in the eastern regions of Ukraine, such as deaths and total destruction, the impact of war on formation of value orientation of student youth is relevant. Under conditions of popularization of violence it is extremely important to become a full-fledged citizen capable of defending one's rights, because the future of our country depends on it. War nullifies the moral and legal norms of peaceful life, compromise and dialogue as a means of achieving goals. This will largely determine the norms

of behaviour of Ukrainian citizens who were formed during the war. The desire for peace and war end is now the main desire of the majority of Ukrainian students.

### **Purpose, Subject and Research Methods**

The purpose of study is to assess the attitude of Ukrainian student youth to hostilities in the Eastern Ukraine and the impact of war on formation of value orientations of students in the context of armed conflict. The study was conducted in May 2021 on the basis of Ternopil Ivan Puluj National Technical University (TNTU named after I. Puluj). The respondents were 140 University students – 104 boys and 36 girls aged 18 to 21, representing mainly the Western Region of Ukraine – Volyn, Zakarpattia, Ternopil, Lviv and Ivano-Frankivsk Regions. 53% of respondents are urban dwellers and 47% are rural residents. The content of the questionnaire is based on a sociological survey of the Razumkov Center on citizens' assessment of the situation in Donbas<sup>1</sup>, supplemented by own materials. The questionnaire consisted of two parts: the first part contained questions about age, gender, place of residence. The second part consisted of sixteen questions, the answer to which would provide an opportunity to assess the attitude of students to hostilities in the Eastern Ukraine, impact of war on formation of value orientations and position of the students on further conflict settlement. The results of study were summarized and presented in this article in the descriptive and graphical forms.

### **Research Results**

The problem of formation of value orientation of young people is complex and diverse. It remains especially relevant in Ukraine today, as the young generation grows up and is brought up in the context of hostilities and hybrid war. With the beginning of Russia's military aggression in the East of our country, the values of such priorities of Ukrainian youth as an independence of Ukraine, democratic development of the country, freedom of speech, democratic control of government decisions, national and cultural revival, social equality and participation in political life have significantly increased<sup>2</sup>. Instead, before the hybrid war, the number of young people who were constantly interested in political events in the country was

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<sup>1</sup> Citizens' Assessment of the Situation in Donbass. The Results of a Sociological Study. Kyiv, 2015 / URL: [https://razumkov.org.ua/upload/1441002945\\_file.pdf](https://razumkov.org.ua/upload/1441002945_file.pdf)

<sup>2</sup> Value Orientations of Modern Ukrainian Youth. Annual Report to the President of Ukraine, the Verkhovna Rada of Ukraine on the Situation of Youth in Ukraine (following the results of 2015) / State Institute of Family and Youth Policy. K., 2016. 200 p. / URL: [https://dodmc.dn.ua/images/stories/Biblioteka/cinnicni\\_orient\\_sych\\_ykr\\_molodi.pdf](https://dodmc.dn.ua/images/stories/Biblioteka/cinnicni_orient_sych_ykr_molodi.pdf)

only 13.2%, while 33.4% were not interested in politics at all<sup>3</sup>. The years of war dramatically influenced the values formation system of youth, in particular, the importance of civic and national values, such as patriotism, freedom, tolerance, humanism<sup>4</sup>. Today it is extremely important that the issue of formation of value orientations of youth should be an integral part of state-building processes and inclusion of youth in these processes<sup>5</sup>. Participants of the parliamentary hearings on the situation of youth in Ukraine on “Value Orientations of Modern Ukrainian Youth” stressed that formation of value orientations of youth should be based on various forms of work with youth to educate independent, responsible personality for his/her own life and the life of the country. After all, young people are the social group that decisively influences the content and nature of the future of our country, accumulates promising trends of social development<sup>6</sup>.

The study and analysis of the impact of war on formation of value orientations of students is relevant, because the future state of society depends on what foundation of values will be laid in youth. The study aimed to find out the attitude of students of Ternopil Ivan Puluj National Technical University to war, their assessment of socio-political situation in the country and its impact on the value orientations of modern youth. The study involved 140 students, of which 74% of respondents were boys and 26% – girls.

The survey gives grounds to claim that the majority of young people at our University are conscious citizens who takes care about the fate of their country. Thus, 89% of respondents said they were concerned about the complexity of relations between Ukraine and the Russian Federation, and 93% of respondents said they monitor the course of hostilities in the media, while 14% of them – constantly monitor the situation in the Eastern Ukraine. 91% of respondents consider Russia an aggressor state, a party to the conflict, and Donetsk and Lugansk “people’s republics” are considered to be terrorist organizations that have no right to represent the interests of the population of these territories (50%). Giving a general assessment of the military conflict, 89% of respondents consider Russia’s war to be aggression against Ukraine,

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<sup>3</sup> Drach S.V. Value Orientations of Student Youth of Ukrainian Society: Essence and Dynamics. [Collection of scientific works of Khmelnytsky Institute of Social Technologies of the University “Ukraine”](#). 2010. nr. 2. P. 26–30. / URL: [http://nbuv.gov.ua/UJRN/Znpkhist\\_2010\\_2\\_9](http://nbuv.gov.ua/UJRN/Znpkhist_2010_2_9)

<sup>4</sup> Savchenko S.V. Changes in Social Norms and Value Orientations of Youth of Donbas under the Conditions of a Hybrid War. [Education and pedagogical Sciences](#). 2018. Nr. 1. P. 5–16. / URL: [http://nbuv.gov.ua/UJRN/OsDon\\_2018\\_1\\_2](http://nbuv.gov.ua/UJRN/OsDon_2018_1_2)

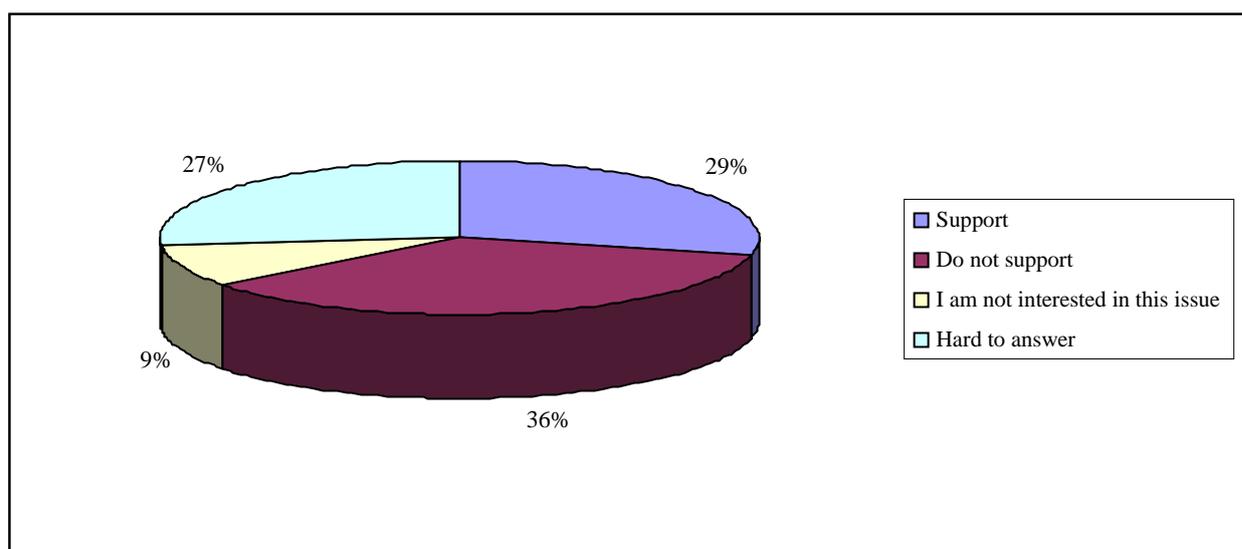
<sup>5</sup> Otroshchenko N.L. Formation of Value Orientations of Student Youth of the East of Ukraine as Social and Pedagogical Investment in Successful Future of the Region / Hybrid War in the East of Ukraine in Interdisciplinary Dimension: Origins, Realities, Prospects of Reintegration: Collection of Scientific Works. Starobilsk, 2017. P. 238–243.

<sup>6</sup> Parliamentary Hearings. / URL: [https://www.rada.gov.ua/news/Novyny/Parlamentski\\_slukhannya/136683.html](https://www.rada.gov.ua/news/Novyny/Parlamentski_slukhannya/136683.html)

each of which calls the Russian Federation an aggressor state. 33% of respondents consider Donetsk and Lugansk “people’s republics” to be quasi-state formations, with 83% of them admit that Russia is a party to the conflict.

The vast majority of respondents (57%) are convinced of the need to provide Ukraine with lethal weapons that will enable the Ukrainian military to stop Russian aggression. 23% of respondents, fearing further escalation of the armed conflict, believe that the provision of such weapons will complicate the peaceful resolution of the conflict, and 13% of respondents believe that provision of lethal weapons will not fundamentally change the situation. Further actions to resolve the conflict in the Eastern Ukraine are ambiguously assessed by students. 50% of respondents support the position on the continuation of hostilities and return of the occupied territories. 9 and 21% of respondents were in favour of separating these territories and giving them a special status, respectively, 20% of students are currently undecided on this issue.

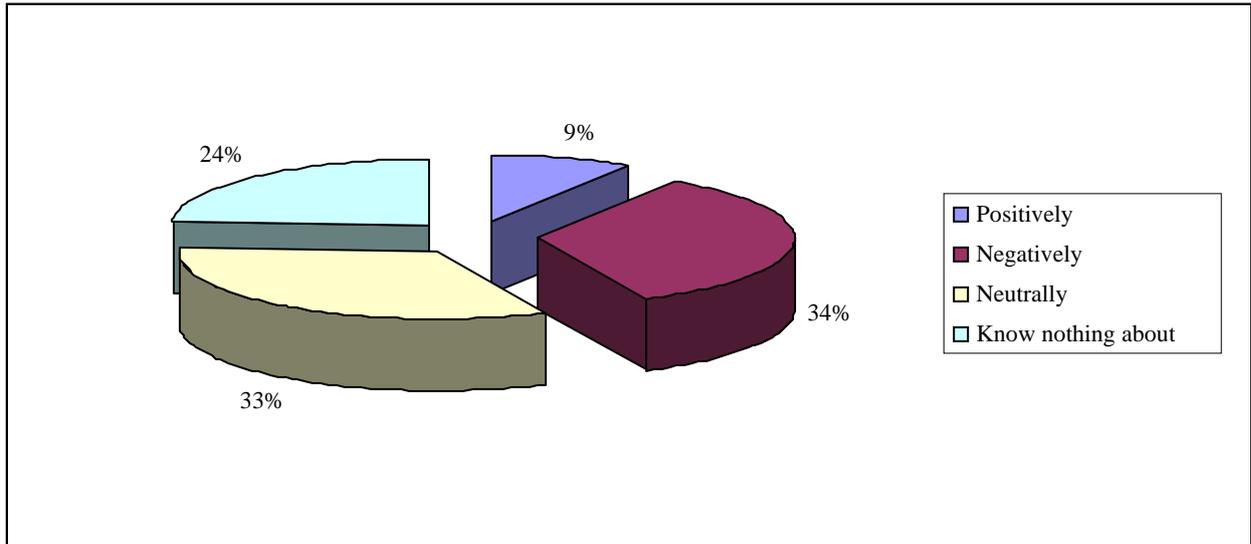
Analyzing the issues of a deeper political nature, it can be argued that the opinions of the respondents were divided as follows. Thus, the question of further coexistence of Ukraine and the uncontrolled part of Donbas is probably too difficult for young people and therefore the relative majority of respondents (47%) found it difficult to answer. The rest of the respondents were in favour of giving Donbas a special status (23%) and ending any relations between Ukraine and the currently occupied territories (29%). Opinions of respondents on the consolidation of the special status of Donbas in the Constitution of Ukraine and on the results of Minsk agreements are presented at Fig. 1. and Fig. 2.



**Figure 1. Position on enshrining the special status of Donbas in the Constitution of Ukraine (%)**

*Source: Own elaboration on the basis of the conducted research*

(Ternopil Ivan Puluj National Technical University)



**Figure 2. Evaluation of the results of Minsk agreements on the situation in Donbas (%)**

*Source: Own elaboration on the basis of the conducted research*

(Ternopil Ivan Puluj National Technical University)

When asked about the participation in the hostilities of relatives, friends and acquaintances, 46% of respondents answered positively, and those who were not affected by the hostilities – make up the vast majority (54%). Analyzing the degree of readiness of the students to join the ranks of the Ukrainian army (Table 1) in case of mobilization announcement, 43% of respondents did not think about this issue.

**Table 1. Readiness to join the ranks of the Ukrainian army in case of total mobilization**

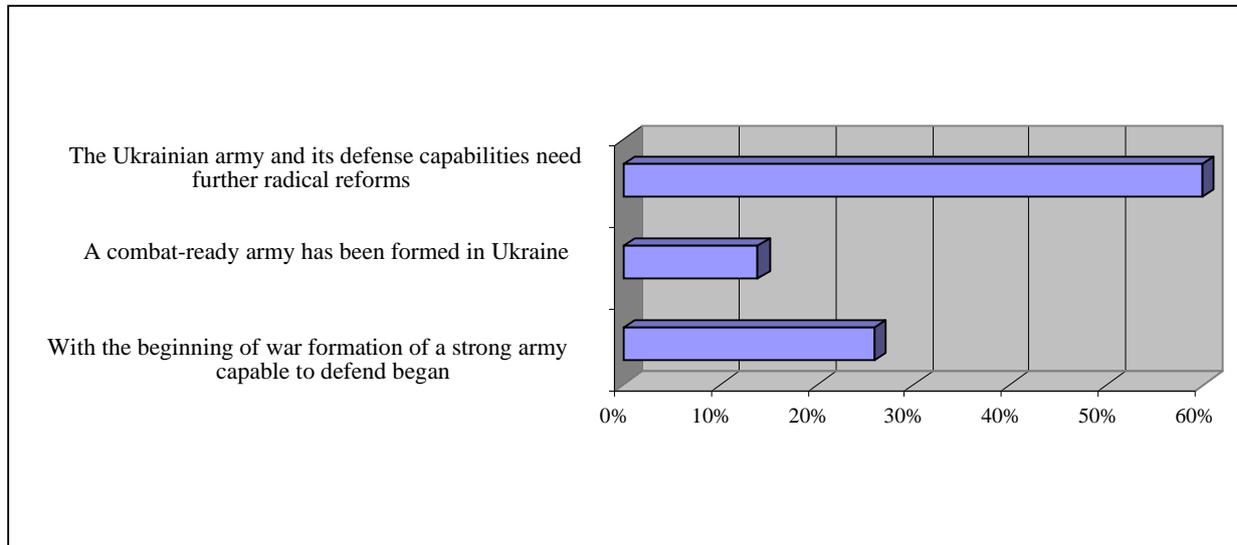
Issue	Sex				Total	
	boys	%	girls	%	respondents	%
Yes, I am ready to join the Armed Forces of Ukraine in case of mobilization to protect the borders of Ukraine	22	21	2	6	24	17
Yes, sometimes there was an idea to join the Armed Forces in order to protect the borders of Ukraine	6	6	12	33	18	13
Did not think on this issue	48	46	12	33	60	43
No, not ready	28	27	10	28	38	27
Total	104	100	36	100	140	100

*Source: Own elaboration*

(Ternopil Ivan Puluj National Technical University)

However, 17% of respondents today say they are ready to defend the state border. At the same time, 33% of girls are inclined to think about military service and 24% of young men surveyed are ready to defend the Motherland. Position of students community on the assessment of the defence capabilities of the Ukrainian army is interesting (Fig. 3). 60% of respondents

believe that the Ukrainian army and its defence capabilities need radical reforms to reach the European level. 26% of respondents are convinced that formation of a strong army, capable to defend, began in Ukraine with the beginning of war and only 14% of respondents believe that Ukraine has formed a capable army, which is the key to freedom and independence of Ukraine.

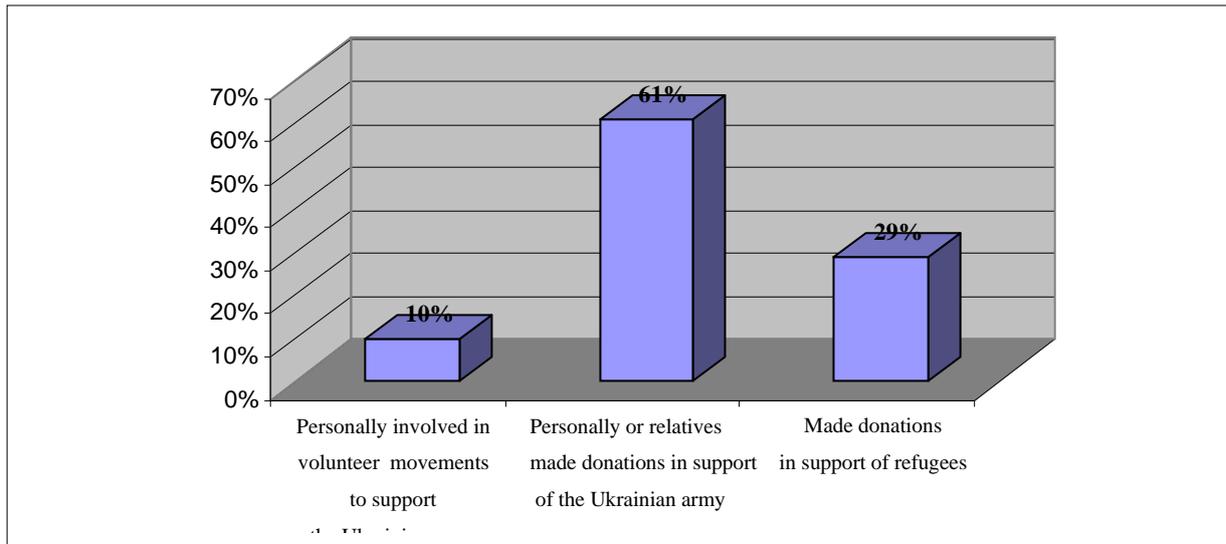


**Figure 3. Assessment of defence capability of the Ukrainian army (%)**

*Source: Own elaboration on the basis of the conducted research*

**(Ternopil Ivan Puluj National Technical University)**

Volunteering plays an important role in lives of today's students. The study shows (Fig. 4) that 61% of respondents personally or their relatives participated in providing material assistance to the Ukrainian military, organized assistance to refugees (29%) and were personally involved in volunteer movements in support of the Ukrainian army (10%). At the same time, 13% of respondents take an active civil position – they are involved in volunteer movements in support of the Ukrainian military, are engaged in organizing assistance to both migrants and population of the occupied territories.

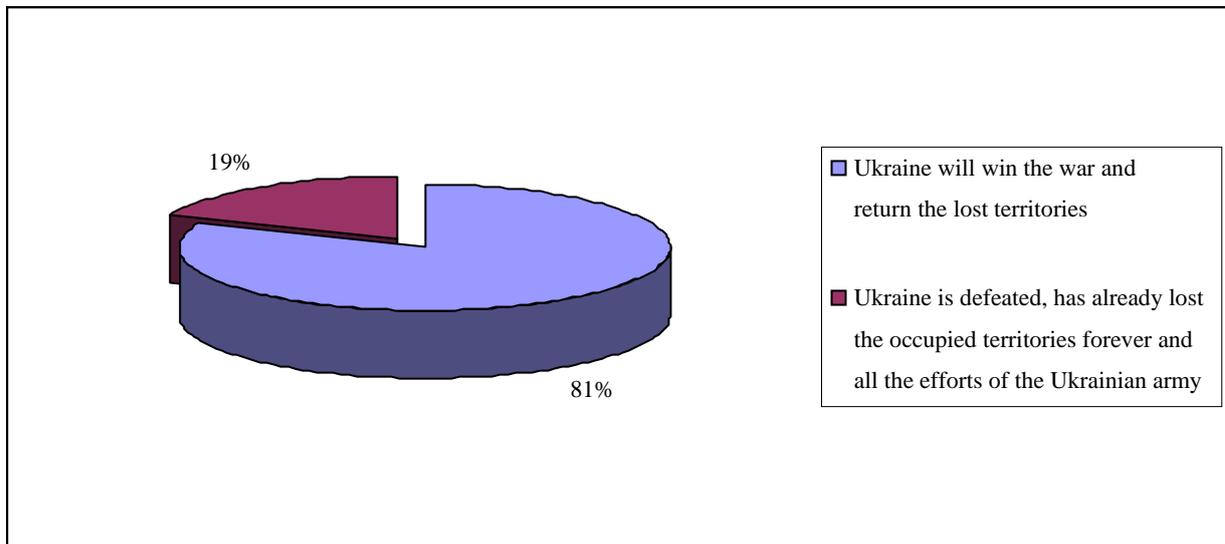


**Figure 4. Participation in volunteer work (%)**

*Source: Own elaboration on the basis of the conducted research*

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When asked about the victory in the war and return of the territories occupied by Russia, the vast majority of respondents (81%) are confident in a positive solution to this issue in favor of our country (Fig. 5).

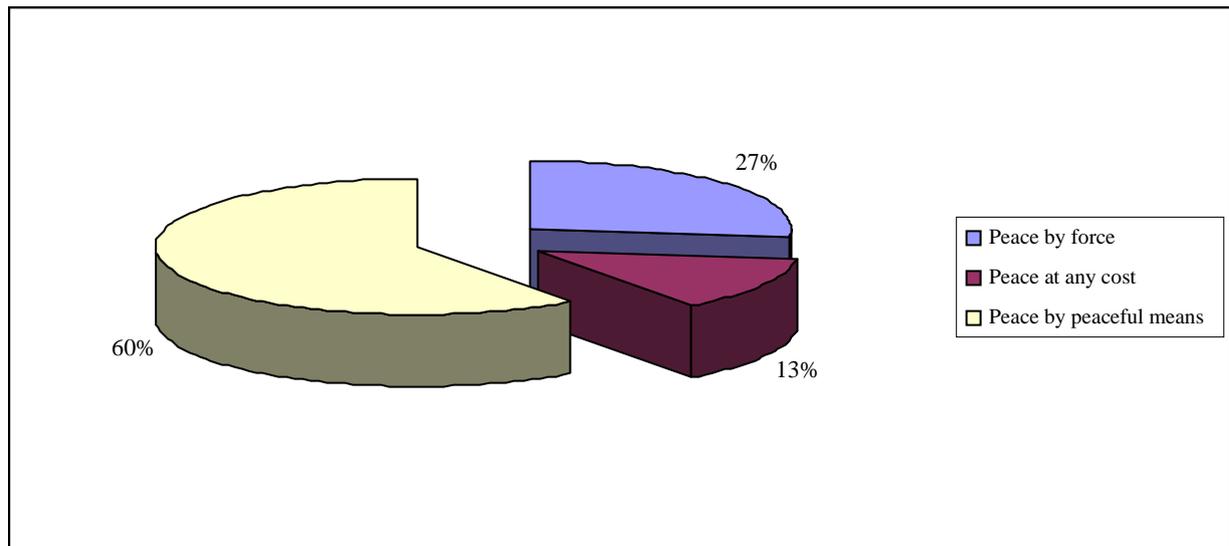


**Figure 5. Ukraine’s chances for victory and return of the occupied territories (%)**

*Source: Own elaboration on the basis of the conducted research*

**(Ternopil Ivan Puluj National Technical University)**

According to the study (Fig. 6), the main desire of Ukrainian students is the desire for peace and war end, where 60% of young Ukrainians are in favour of achieving peace by peaceful means.



**Figure 6. Achieving peace and return of the occupied territories (%)**

*Source: Own elaboration on the basis of the conducted research*

**(Ternopil Ivan Puluj National Technical University)**

Thus, the current students of TNTU are worthy citizens and patriots of their country, who strive for unity and peace and intend to make their region politically and socio-economically stable.

### **Conclusions**

Analysis of study of the student community's attitude to the military conflict in the Eastern Ukraine showed the following results:

1. The vast majority of respondents are concerned about the tense relations between Ukraine and Russia, so they follow the course of events in the conflict zone.
2. 89% of respondents call this war a war of aggression, and 91% are convinced that Russia is an aggressor country.
3. Half of the respondents consider "people's republics" to be terrorist groups that do not have legitimate rights to represent the interests of population of these territories and take position on the hostilities continuation and return of the lost region.
4. Only 9% of respondents were in favour of separating the occupied territories.
5. 60% of respondents believe that the defence capabilities of the Ukrainian army need further radical reforms, but at the same time 21% of boys and 6% of girls are now ready to defend the borders of Ukraine.

6. 46% of respondents confirmed the fact that their relatives and acquaintances took part in fighting in Donbas, and the vast majority (61%) actively participate in volunteer movements in support of the Ukrainian military and displaced persons.

7. According to 81% of respondents, Ukraine will win the war and return the occupied territories, and the vast majority of them (60%) seek peace by peaceful means.

Thus, modern young generation understands the fact that war in Donbas is not a local, peripheral conflict, neither crisis in Ukraine, nor a civil confrontation, but an ongoing military occupation and armed aggression by Russia against Ukraine, and believes that Ukraine will win in this war and return the lost territories. The study showed that the students of Ternopil Polytechnics are characterized by such a system of values, which is based on feelings of patriotism, commitment to strengthening the statehood, willingness to defend their Homeland. Taking an active civil position, today's students are not indifferent to human misfortunes, socially responsible, have not lost faith in future, in a peaceful future and restoration of the territorial integrity of their country.

### Literary Sources

1. Citizens' Assessment of the Situation in Donbass. The Results of a Sociological Study. Kyiv, 2015 / URL: [https://razumkov.org.ua/upload/1441002945\\_file.pdf](https://razumkov.org.ua/upload/1441002945_file.pdf)
2. Value Orientations of Modern Ukrainian Youth. Annual Report to the President of Ukraine, the Verkhovna Rada of Ukraine on the Situation of Youth in Ukraine (following the results of 2015) / State Institute of Family and Youth Policy. Kyiv, 2016. 200 p. / URL: [https://dodmc.dn.ua/images/stories/Biblioteka/cinnicni\\_orient\\_sych\\_ykr\\_molodi.pdf](https://dodmc.dn.ua/images/stories/Biblioteka/cinnicni_orient_sych_ykr_molodi.pdf)
3. Drach S.V. Value Orientations of Student Youth of Ukrainian Society: Essence and Dynamics. [Collection of Scientific Works of Khmelnytsky Institute of Social Technologies of the University "Ukraine"](#). 2010. nr. 2. P. 26–30. / URL: [http://nbuv.gov.ua/UJRN/Znpkhist\\_2010\\_2\\_9](http://nbuv.gov.ua/UJRN/Znpkhist_2010_2_9)
4. Savchenko S.V. Changes in Social Norms and Value Orientations of Youth of Donbas under the Conditions of a Hybrid War. [Education and Pedagogical Sciences](#). 2018. Nr. 1. C. 5–16. / URL: [http://nbuv.gov.ua/UJRN/OsDon\\_2018\\_1\\_2](http://nbuv.gov.ua/UJRN/OsDon_2018_1_2)
5. Otroshchenko N.L. Formation of Value Orientation of Student Youth of the East of Ukraine as Social and Pedagogical Investment in Successful Future of the Region / Hybrid

War in the East of Ukraine in Interdisciplinary Dimension: Origins, Realities, Prospects of Reintegration: Collection of Scientific Works. Starobilsk, 2017. P. 238–243.

6. Parliamentary Hearings. / URL: [https://www.rada.gov.ua/news/Novyny/Parlamentski\\_slukhannya/136683.html](https://www.rada.gov.ua/news/Novyny/Parlamentski_slukhannya/136683.html)

### References

1. Otsinka hromadianamy sytuatsii na Donbasi. Rezultaty sotsiologichnoho doslidzhennia. [Citizens' Assessment of the Situation in Donbass. The Results of a Sociological Study] Kyiv, 2015 / URL: [https://razumkov.org.ua/upload/1441002945\\_file.pdf](https://razumkov.org.ua/upload/1441002945_file.pdf)
2. Tsinnisni oriientsii suchasnoi ukrainskoi molodi. Shchorichna dopovid Prezydentu Ukrainy, Verkhovni Radi Ukrainy pro stanovyshe molodi v Ukraini (za pidsumkamy 2015 roku) [Value Orientations of Modern Ukrainian Youth. Annual Report to the President of Ukraine, the Verkhovna Rada of Ukraine on the Situation of Youth in Ukraine (following the results of 2015)] / Derzhavnyi instytut simeinoi ta molodizhnoi polityky. Kyiv, 2016. 200 s. / URL: [https://dodmc.dn.ua/images/stories/Biblioteka/cinnicni\\_orient\\_sych\\_ykr\\_molodi.pdf](https://dodmc.dn.ua/images/stories/Biblioteka/cinnicni_orient_sych_ykr_molodi.pdf)
3. Drach S.V. 2010. Tsinnisni oriientsii studentskoi molodi ukrainskoho suspilstva: sutnist ta dynamika [Value Orientations of Student Youth of Ukrainian Society: Essence and Dynamics]. Zbirnyk naukovykh prats Khmelnytskoho instytutu sotsialnykh tekhnolohii Universytetu "Ukraina". № 2. S. 26–30. / URL: [http://nbuv.gov.ua/UJRN/Znpkhist\\_2010\\_2\\_9](http://nbuv.gov.ua/UJRN/Znpkhist_2010_2_9)
4. Savchenko S.V. 2018. Zminy sotsialnykh norm ta tsinnisnykh oriientsii molodi Donbasu v umovakh hibrydnoi viiny [Changes in Social Norms and Value Orientations of Youth of Donbas under the Conditions of a Hybrid War]. [Education and pedagogical sciences](#). № 1. S. 5–16 / URL: [http://nbuv.gov.ua/UJRN/OsDon\\_2018\\_1\\_2](http://nbuv.gov.ua/UJRN/OsDon_2018_1_2)
5. Otroshchenko N. L. 2017. Formuvannia tsinnisnykh oriientsii uchnivskoi molodi Skhodu Ukrainy yak sotsialno-pedahohichnoi investytsii v uspishne maibutnie rehionu [Formation of Value Orientation of Student Youth of the East of Ukraine as Social and Pedagogical Investment in Successful Future of the Region], Hibrydna viina na Skhodi Ukrainy v mizhdystyplinarnomu vymiri: vytoky, realii, perspektyvy reintehratsii: zbirnyk naukovykh prats. Starobilsk. S. 238–243.

6. Parlamentski slukhannia [Parliamentary Hearings] / URL:  
[https://www.rada.gov.ua/news/Novyny/Parlamentski\\_slukhannya/136683.html](https://www.rada.gov.ua/news/Novyny/Parlamentski_slukhannya/136683.html)

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## **PUBLIC ADMINISTRATION OF EDUCATION IN UKRAINE**

### **Summary**

The article describes in details the content of the concept of public administration, in particular public administration in the field of education. The emergence of a new form of governance in the public sphere was caused by the need to modernize the organizational structures and procedures that they use in order to make all the institutions of the public sphere work better. The essence, subjects and objects of education management are revealed. The education system is designed to contribute to the implementation of the main tasks of the country's socio-economic and cultural development. The main strategic objectives of the development of the educational management process in the XXI century have been clarified: the transition from state to state-public administration, a clear delineation of functions between central, regional and local government bodies, ensuring the self-government of educational institutions and scientific institutions, approving a harmonious combination of rights in the field of education individual, society and state. The structure of the regional education system has been determined. The regional program for the development of education «New educational space of the Kharkiv region» is considered and the main directions that have a significant impact on the development of the education system in the Kharkiv region are analyzed.

**Key words:** public administration, education management, system, governing bodies, educational sphere, regional level.

### **Introduction**

The problems and contradictions that exist today in the domestic educational system and are the result of its thirty years of formation and development are increasingly attracting the attention of Ukrainian researchers conducting scientific discussions about the obtained and expected results and consequences of the implementation of the strategy for the development

of education chosen by the Government, the chosen European vector, the need for commercialization education, etc.

Since gaining independence in 1991, all components of educational institutions of Ukraine have undergone modernization and reform: preschool education, primary, secondary, higher, extracurricular, vocational, postgraduate pedagogical education on the implementation of organizational, scientific and methodological, scientific work in accordance with Of the Constitution of Ukraine, the Laws of Ukraine «About Education» [1], «About Higher Education» [2], «About Secondary Education» [3], «About Out-of-School Education» [4], «About Scientific and Scientific and Technical Activities» [5], «About innovation activity» [6].

The essence, methodological foundations and various aspects of public administration were revealed in their works by G. Atamanchuk, I. Bachilo, V. Bakumenko, V. Knyazev, B. Kurashvili, O. Lunev, V. Malynovskyi, N. Nyzhnyk, V. Rebkalo, Yu. Tykhomyrov and many others. The issue of public administration in the field of education in Ukraine was studied in their works by S. Zharaia, S. Kalashnikova, V. Lugovyi, V. Maiboroda, S. Maiboroda, D. Karamyshev, V. Bulba, O. Postupna, V. Sychenko, V. Rostovska and others. Despite a wide range of scientific developments in public administration in education, there are many problems that require further development and research.

### **The purpose and results of research**

The main purpose of the article is to study the public administration of the educational sphere in Ukraine.

The term «public administration» was first used by the English civil servant Desmond Keeling in 1972. «Public administration is a search for the best way to use resources to achieve the priority goals of public policy» (Keeling's definition) [7, p. 15]. The emergence of a new form of governance in the public sphere was prompted by the need to modernize the organizational structures and procedures that they use in order to make all the institutions of the public sphere work better. Public administration concerns the effective functioning of the entire system of political institutions.

Many different definitions of public administration can be found in the scientific literature. In the publication «Public administration: terminological dictionary», which contains about 1000 terms, it is determined that public administration is the activity of state administration bodies, local authorities, representatives of the private sector and civil society

institutions within the limits of powers and functional responsibilities (planning, organization, leadership, coordination and control) on the formation and implementation of managerial decisions of public importance, development policy of the state and its administrative-territorial units. Public administration provides a significant increase in the efficiency of management activities due to a high level of public support and consolidation of society around common goals, it is associated with democratic values, the principles of the rule of law, respect for human dignity, non-discrimination, equality, fairness, safety, efficiency, etc. [8, p. 144].

Also, the specified dictionary indicates that public administration in the field of education is a powerfully organizing and regulating influence of public authorities and other subjects to whom public powers are delegated to the field of education in order to streamline it, function, preserve and develop, is limited by effective public control [ 8, p. 145].

As M. Shevchenko notes, the essence of education management is the purposeful activity of the state to create socio-prognostic, organizational and legal, personnel, psychological, pedagogical, material and financial and other conditions necessary for the optimal functioning and development of the industry, the implementation of its goal, the transition to a qualitatively new state and integration into the European educational space [9].

Management in education is viewed as a subsystem of social management, which is understood as the impact on society in order to streamline it, preserve the qualities, specificity, improvement and development.

The education system can be streamlined through management (regulation from the outside) and self-government (regulation from within). The educational system, being organically connected with management, changes with the change of the latter, it improves, reformed, transforms and as a whole develops itself only through management.

Both subjects (those that govern) and objects (those that govern) are involved in the management process. The subjects of management in the most general form are defined as a set of specially created bodies (state, public, self-government), their subdivisions, officials performing management functions.

Objects of education management are the education system, education management bodies, their subdivisions, officials, educational institutions, organizations, institutions, industrial enterprises, etc., which are under the organizing, regulating and coordinating influence of the state.

The system of public administration of education also includes public administration activity (process), a certain kind of social relations, through which numerous direct and feedback links between the subjects and objects of management are realized [9].

The national doctrine of the development of education in Ukraine in the XXI century defines the main strategic objectives of the development of the education management process: «the transition from state to state-public administration, a clear delineation of functions between central, regional and local government bodies, ensuring the self-government of educational institutions and scientific institutions, approval in the field of education a harmonious combination of the rights of the individual, society and the state» [10, p. 12].

One of the ways to accomplish these tasks is to scientifically substantiate a new education management system, develop innovative models, education management mechanisms at all levels: state, regional, and municipal.

The activities of state institutions (the Ministry of Education and Science of Ukraine, education departments of Regional State Administrations, etc.) and organizations of open socio-economic systems, due to the entry of Ukraine into the world economic community, can be successful, provided that continuous interaction and feedback are established with the external environment.

If earlier the functioning of state institutions and organizations was mainly based on the use of legal acts, rules, procedures, standard approaches, were developed and proposed by organizations of the highest organizational and legal level, today they are forced to develop their own approaches to management that would make it possible to form characteristics that differ from competitors and a positive image of the organization [11, p. 23].

In today's conditions, educational authorities, for example, need to carry out work that provides market research to assess the marketing opportunities for educational services provided by educational institutions, predict the dynamics of their consumption, identify and evaluate competitors for this educational service and, on this basis, make a decision on the appropriateness of its provision.

The state policy of Ukraine, aimed at the development of regional education, at the current stage requires improvement, adaptation to social realities and challenges of the time, and at the same time - preserving the best achievements of the past, revising the strategic goals and program actions of the state and regional authorities.

As the analysis of the development of regional education shows, its qualitative parameters, the possibility of building up the necessary human potential mainly depend on the

state as an institution that has real economic, financial, organizational and informational capabilities for knowledge management in all territories of the country. In this sense, the state regional educational policy of Ukraine acts as the main engine and resource for the formation of human potential through the creation of socio-economic and technological conditions for high-quality education, reproduction and implementation of subject knowledge, including their preservation and increase in the region and throughout the country as a whole.

However, in any region, educational processes cannot be carried out equally. This is primarily due to the difference in the quantitative and qualitative state of geographical, historical, socio-cultural, demographic, ethnic, economic and other elements, conditions and factors of development of each region, which, in fact, gives rise to regional characteristics in all spheres of public life, including education.

At the regional level, public administration in the field of education is ensured by local state administrations and their subordinate administration bodies, in whose sphere of administration are educational institutions, as well as local self-government bodies. Their activities should be aimed at providing financial, material and technical, personnel, social protection, legal support for the education system at the local level. In the Kharkiv region, such a body is the Department of Science and Education of the Kharkiv Regional State Administration. The Department is a structural subdivision of the Regional State Administration, the main task of which is to ensure the implementation of state policy in the field of science and education at the regional level.

Due to the need of cardinal changes aimed at improving the quality of education in the new economic and socio-cultural conditions, it became necessary to adopt a regional program for the development of education. Therefore, in the Kharkiv region, the Regional Program for the Development of Education «New Educational Space of the Kharkiv Region» for 2019 - 2023 was developed and approved (hereinafter referred to as the Program) [12].

The initiator of the development of the Program was the Kharkiv Regional State Administration.

The program was developed by the Department of Science and Education of the Regional State Administration together with other structural divisions of the Regional State Administration, as well as representatives of professional (vocational) education institutions, higher educational institutions, boarding schools of regional subordination, regional state administrations, local governments, public, trade union and charitable organizations.

The program was developed in accordance with the current legislation, approved at a session of the Kharkiv Regional Council and is under its control. The Kharkiv Regional State Administration informs the Regional Council on a quarterly basis about the progress of the Program.

The purpose of the Program is: to ensure the stable development of the education system in the region in accordance with the needs of society, the economy, to ensure the personal development of children and youth in accordance with their individual abilities and needs.

Funding for the Program is carried out at the expense of the state, regional and local budgets, as well as other sources of funding not prohibited by the current legislation of Ukraine.

The program is being implemented in 9 areas that have a significant impact on the development of the education system in the region, namely: preschool education; general secondary education; creating conditions for high-quality teaching of the Ukrainian language in institutions of general secondary education; out-of-school education; correctional and inclusive education; professional (vocational) education; higher education and science - regional development; staffing; social protection.

The goal and objectives of the Program are achieved through the implementation of measures that, in particular, provide for:

- increasing the level of professional competence of teachers by holding conferences, workshops, round tables, trainings, etc. for teachers in priority areas of education development;
- increasing the prestige of the profession of educator and teacher in society, improving his professional skills, holding a regional competition «The best educator of the Kharkiv region», «Teacher of the year»;
- strengthening the material and technical base of educational institutions of the region and providing them with modern equipment;
- holding professional competitions, festivals, regional open exhibitions of «best practices» in order to highlight the advanced teaching experience of teaching staff of educational institutions;
- support and creation of conditions for the all-round development of gifted student youth
- rewarding the winners of the All-Ukrainian student olympiads in academic subjects, the All-Ukrainian competition for the defense of scientific research works of students - members of the Small Academy of Sciences of Ukraine;
- improving the quality of training graduates of general secondary education institutions for external independent assessment;

- fostering an ecological and aesthetic culture among students, attracting them to active activities in studying the historical and cultural heritage of their native land, stimulates the growth of patriotism, preparation for professional self-determination;
- ensuring the realization of the right of children with special needs to study in inclusive and special classes;
- modernization of the educational and practical base of professional (vocational) education institutions;
- material and moral support for gifted student youth from among orphans and children deprived of parental care, persons from among them, as well as students aged 18 to 23, who during the period of study were left without parents and most distinguished in their studies;
- stimulating the creative activity of scientific-pedagogical and pedagogical workers of higher educational institutions; dissemination of positive experience of their work;
- stimulating the creative work of outstanding and gifted young scientists, certifying outstanding personal achievements, preserving and increasing the effectiveness of scientific schools, and the like.

It is expected that the implementation of the Program activities will allow:

- to increase the number of places in preschool education institutions by 2000;
- to create 10 supporting institutions of general secondary education;
- to carry out major repairs of premises, buildings and life support systems in 30 educational institutions of the region;
- to update and replenish the existing fleet of school buses by 30 units;
- to provide 80 institutions of general secondary education of the region with computer technology, multimedia and interactive equipment;
- to equip 50 classrooms of chemistry, biology, physics, geography and mathematics with equipment in institutions of general secondary education of the region;
- to build 15 sports grounds for classes and sports events for students of general secondary education institutions;
- to build 25 ramps in accordance with state building codes in educational institutions of the region;
- to increase the proportion of children enrolled in out-of-school education by 90.0%;
- to create 5 regional multidisciplinary vocational education centers and 5 training and practical centers for the introduction of innovative technologies and equipping them with modern equipment and technology in industry areas;

- create 12 inclusive resource centers;
- expand the network of institutions of general secondary education with inclusive education; provide 100% of general education institutions with the means for unimpeded access.

Also, it should be noted that the higher school of the Kharkiv region retains its leading positions in Ukraine. Almost 170 thousand students receive higher education in 80 institutions of higher and professional before higher education, functioning stably on the territory of the Kharkiv region. 19 universities have the status of a national institution, the educational-scientific-methodological process is provided by 18.8 thousand scientific-pedagogical and pedagogical workers.

In 2020, 32.4 thousand specialists with higher education graduated, more than 5 thousand graduates received diplomas with honors.

In institutions of higher and professional before higher education enrolled to study at the educational levels of bachelor, master, educational and professional degrees - professional junior bachelor 47.5 thousand students, of which to the places of state (regional) order - 21.6 thousand people.

39 best students and 40 scientists receive regional scholarships, 6 young scientists became winners of the III of the regional competition «The best young scientist of Kharkiv region».

More than 1000 agreements on international cooperation are in force in institutions of higher education and scientific institutions, incl. 15 higher educational institutions took part in the implementation of the international programs Erasmus +, Horizon 2020, Jean Monnet. About 19 thousand foreign citizens from 110 countries of the world study in 35 institutions of higher education.

Leading higher educational institutions of the Kharkiv region show high performance in terms of participation in national and world rankings. In 2020, 13 Kharkiv universities were included in one hundred higher educational institutions of Ukraine in the annual university ranking «Top 200 – Ukraine».

The scientific potential of the Kharkiv region is represented by 141 scientific institutions, among them: 21 institutions of the National Academy of Sciences of Ukraine, 29 higher educational institutions, 4 national centers, 26 objects have the status of a national treasure of Ukraine, 6 scientific parks and 1 technopark of state importance.

144 academicians and corresponding members represent Kharkiv in the national academies of sciences of Ukraine; 12.5 thousand specialists are engaged in scientific and scientific-technical work.

Summing up the above, it can be argued that in the Kharkiv region there is a positive trend towards providing conditions for maintaining the current education network and its development in accordance with the requirements of society, the needs of the individual and the needs of the state and region.

Significant uncertainty regarding the functioning of the education system this year is associated with the restrictions caused by the spread of coronavirus infection. In addition, insufficient funding affects the effective functioning and development of the regional education system.

### **Summary**

Thus, public administration of education is a separate branch of public administration that provides a systematic impact on the educational sphere, based on laws and other regulations, and is aimed at the development of this integral system.

The development of regional education in our country is an important component of both the national educational sphere and the socio-cultural development of certain regions and regions of Ukraine. Effective public administration is called upon to make education at the regional level of better quality and more accessible.

Given the challenges, Ukrainian society is striving for modernization on an innovative basis in order to gain the acceleration characteristic of global progress. The main driver of this process has always been and will remain people - competent and qualified, constructive and competitive. Education plays a key and, most importantly, an increasing role in the development of human potential and human capital. Exclusively due to the educational component in the indices of human development and global competitiveness, according to these indicators, Ukraine holds the middle position among many countries of the world. At the same time, it is becoming more and more obvious that the extensive path of growth of domestic education has completely exhausted itself. On the agenda is the achievement of new quality characteristics that meet the requirements. Their achievement requires a clear strategic planning of educational development both at the national and regional levels.

**Bibliography**

1. About education: Law of Ukraine dated September 5, 2017 No. 2145-VII. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/2145-19#Text>
2. About higher education: Law of Ukraine dated July 1, 2014 No. 1556-VII. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/1556-18#Text>
3. About secondary education: Law of Ukraine dated January 16, 2020 No. 463-IX. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/463-20#Text>
4. About out-of-school education: Law of Ukraine dated June 22, 2000 No. 1841-III. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/1841-14#Text>
5. About scientific and scientific and technical activities: Law of Ukraine dated November 26, 2015 No. 848-VIII. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/848-19#Text>
6. About innovation activity: Law of Ukraine dated July 4, 2002 No. 40-IV. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/40-15#Text>
7. Keeling D. Management in Government / D. Keeling (1972), London: Allen & Unwin.
8. Public administration: terminol. words. / Comp. V. S. Kuibida, M. M. Belinska, O. M. Petroie and others; under total. ed. V. S. Kuibida, M. M. Bilinska, O. M. Petroie. - Kiev: NADU, 2018. -- 224 p.
9. Shevchenko M.M. The essence of public administration of education / Mykola Mykolajovych Shevchenko // Management in education: collection of materials of the V International scientific-practical conference, April 14-16, 2011 / Institute of innovative technologies and educational content [and others]. - Lviv: Publishing House of Lviv Polytechnic, 2011. - P. 347-348.
10. Povazhnyi A.S., Ostapchuk V.V. Characteristics of public administration in the implementation of innovations in education // Manager. - 2004. - No. 2 (28). - P.18.
11. Martynenko V.M. Democratization of the mechanisms of state management of the processes of social transformations: dis. ... Doctor of Science in Public Administration: 25.00.02 / Donetsk, 2005. - p. 189.
12. Regional program for the development of education "New educational space of the Kharkiv region" for 2019 - 2023. [Electronic resource]. - URL: <http://www.oblrada.kharkov.ua/ua/public-information/oblasni-programi>

13. National doctrine of education development. - K.: Parliament, publishing house, 2004. -- p. 279-294.
14. Dzvinchuk D. Public administration of education in Ukraine: trends and legislation / D Dzvinchuk. - K.: CJSC "Nachlava", 2009. - 239 p.
15. Krysiuk S. V. Public administration of education / S. V. Krysiuk. - K.: NADU, 2009. - Sec. 3.
16. State Statistics Service of Ukraine. [Electronic resource]. - URL: <http://www.ukrstat.gov.ua>
17. About local state administrations: Law of Ukraine dated April 9, 1999 No. 586-XIV. [Electronic resource]. - URL: <https://zakon.rada.gov.ua/laws/show/586-14#Text>

### **Бібліографія**

1. Про освіту : Закон України від 5 вересня 2017 року № 2145-VII. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/2145-19#Text>
2. Про вищу освіту : Закон України від 1 липня 2014 року № 1556-VII. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/1556-18#Text>
3. Про повну загальну середню освіту : Закон України від 16 січня 2020 року № 463-IX. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/463-20#Text>
4. Про позашкільну освіту : Закон України від 22 червня 2000 року № 1841-III. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/1841-14#Text>
5. Про наукову та і науково-технічну діяльність : Закон України від 26 листопада 2015 року № 848-VIII. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/848-19#Text>
6. Про інноваційну діяльність : Закон України від 4 липня 2002 року №40-IV. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/40-15#Text>
7. Keeling D. Management in Government / D. Keeling (1972), London: Allen & Unwin.
8. Публічне управління : термінол. слов. / уклад. : В. С. Куйбіда, М. М. Білинська, О. М. Петроє та ін. ; за заг. ред. В. С. Куйбіди, М. М. Білинської, О. М. Петроє. – Київ : НАДУ, 2018. – 224 с.
9. Шевченко М. М. Сутність державного управління освітою / Микола Миколайович Шевченко // Управління в освіті : збірник матеріалів V Міжнародної науково-практичної конференції, 14–16 квітня 2011 року / Інститут інноваційних технологій

- і змісту освіти [та інші]. – Львів : Видавництво Львівської політехніки, 2011. – С. 347–348.
10. Поважный А.С., Остапчук В.В. Характеристики государственного управления внедрением инноваций в образование // Менеджер. — 2004. — № 2(28). — С.18.
  11. Мартиненко В.М. Демократизація механізмів державного управління процесами суспільних трансформацій: дис. ... д-ра наук з держ. упр.: 25.00.02 / Донецьк, 2005. — С.189.
  12. Обласна програма розвитку освіти «Новий освітній простір Харківщини» на 2019 – 2023 роки. [Електронний ресурс]. – URL: <http://www.oblrada.kharkov.ua/ua/public-information/oblasni-programi>
  13. Національна доктрина розвитку освіти. - К. : Парламент, вид-во, 2004. - С. 279-294.
  14. Дзвінчук Д. Державне управління освітою в Україні: тенденції і законодавство / Д. Дзвінчук. - К.: ЗАТ "Нічлава", 2009. - 239 с.
  15. Крисюк С. В. Державне управління освітою / С. В. Крисюк. - К. : НАДУ, 2009. - Розд.3.
  16. Державна служба статистики України. [Електронний ресурс]. – URL: <http://www.ukrstat.gov.ua>
  17. Про місцеві державні адміністрації : Закон України від 9 квітня 1999 року № 586-IV. [Електронний ресурс]. – URL: <https://zakon.rada.gov.ua/laws/show/586-14#Text>

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## **PROFESSIONAL SKILLS OF A LAW TEACHER IN PRE-HIGHER AND HIGHER EDUCATION INSTITUTIONS WITH SPECIFIC LEARNING CONDITIONS**

### **Summary**

The article considers and explores the concept of professional skills of a teacher of an educational institution, features of professional skills of teaching staff in educational institutions with specific learning conditions, conditions of reforming these institutions for the possibility of professional skills development by teachers of legal disciplines during the changes in the current legislation of Ukraine and the integration of the educational process into the European space.

**Keywords:** professional skills, professional development, pre-higher and higher education institutions, specific learning conditions.

### **Introduction**

Modern features of Ukrainian society are changes in all spheres of life which require to move the economy, industry, culture, science and education to provide highly qualified professionals who can interact effectively in accordance with the requirements of society and the state, able to solve set tasks independently, creatively, intellectually, critically and professionally.

Such rates of change in public relations require appropriate improvement of training in various fields and at all levels of education. In various fields of law, the profession of a lawyer is responsible, so the fate of man, his life and freedom, as well as the security of society depends on the lawyer.

As never before, the profession of a lawyer in the field of law enforcement poses complex challenges to employees of these agencies, which are associated with dynamic changes

in current legislation of Ukraine, as well as with the technical and technological equipment of perpetrators who commit illegal acts. Institutions of pre-higher and higher education with specific learning conditions are designed to train highly qualified, skilled and professional staff who will be able to meet the expectations and requirements of society to them.

It is because of the peculiarities of the training of law enforcement officers for the Security Service of Ukraine, Tax Service, police, etc., which involves mastering the knowledge and skills of operational and investigative activities, conducting investigative and covert investigative actions, the use of physical measures, special means and firearms, the ability to respond quickly and adequately to dangerous circumstances and situations, being in conditions of professional risk, requires from teachers of these educational institutions an additional range of professional knowledge and skills that are not inherent in the scientific and pedagogical staff of other institutions that provides educational services. In this regard, teachers of educational institutions with specific learning conditions need to devote more time not only to scientific and pedagogical activities, but also to maintain themselves in a state of professional training that would allow him to perform the functions of an employee of one or another law enforcement agency.

### **Purpose, subject and research methods**

**The purpose of this article** is determining the professional skills of teachers of law in institutions of pre-higher and higher education with specific learning conditions and making proposals to improve such activities.

**The subject** of the research is professional development of pedagogical workers in these educational institutions.

**The research methods:** A number of general scientific and special methods of cognition have been used to comprehensively disclose the problem, achieve an objective scientific result and formulate appropriate conclusions. The scientific research is based on a dialectical method that contributed to the comprehensive study of professional skills and its development of teachers in educational institutions with specific learning conditions, which revealed the current state of the subject under consideration. The functional method was used to clarify the internal system, intersystem and external system connections during the professional development of such pedagogical workers. The formal-logical method was chosen in the process of analysis of the current legislation of Ukraine in matters relating to the legal

regulation of professional development of pedagogical workers of educational institutions with specific learning conditions.

### **Results of research**

The right to professional development and professional skills of teachers of legal sciences in institutions of pre-higher and higher education with specific learning conditions is a component of the right to education. This right includes the right to receive professional education of the appropriate level and the right to receive additional professional knowledge and skills [1, p. 215]. We should agree with the opinion of Yu. P. Orlovsky that the right to education is closely related to the right to work [2, p. 12]. A necessary element for holding certain positions, promotion, salary increase is high professional training. Modern requirements for the development of the education system in Ukraine require from teachers constant professional endeavour at self-improvement and professional growth.

The definition of higher education institutions with specific conditions of study is enshrined in the section 1 of the Law of Ukraine "On Higher Education", according to which such an institution is a state-owned higher education institution that trains cadets (students) at certain levels of higher education, units for further service as officers (sergeants, foreman) or chiefs to meet the needs of the Ministry of Internal Affairs of Ukraine, the National Police, the Armed Forces of Ukraine, other military formations formed in accordance with the laws of Ukraine, central executive agencies with special status, Security Service Ukraine, the Foreign Intelligence Service of Ukraine, the central executive authority that implements state policy in the field of state border protection, the central executive body that ensures the formation and implementation of state policy in the field of civil protection[3].

According to the Law "On the National Police of Ukraine", professional training of police officers is carried out not on the basis of educational institutions, but on the basis of support institutions [4]. However, such institutions provide professional and technical education in the police profession, are registered in the Unified State Database of Education and issue diplomas of skilled workers.

Most teachers of higher education institutions of the Ministry of Internal Affairs, as well as security institutions, have the rank of police, enjoy all social guarantees along with

investigators, patrols, precincts, operatives, and can be involved in the service of public order protection.

In connection with the above definitions of current legislation, there is a question about more requirements for the professional skills of teachers of law in institutions of higher and higher education with specific learning conditions, given that most of them do not have special pedagogical education.

Professional skill of any educator is possible only when he strives for professional self-development, the main tasks of which are: ensuring the effective performance of functional responsibilities; increase management flexibility and suitability for innovation; career advancement and growth; increase of professional growth, adaptation of employees to new technologies; expansion of competencies, knowledge, skills and abilities [5, p. 42].

Many eminent domestic and foreign educators have always paid attention to the issue of pedagogical skills. It is appropriate to name the names of A. Disterweg, I.A. Zyazyuna, Ya.A. Comenius, A.S. Makarenko, B.O. Sukhomlinsky, KD Ushinsky and others. In their scientific works, they covered the issues of professional training of teachers, determined the conditions for the formation of pedagogical skills and its constituent elements.

In the Ukrainian pedagogical dictionary pedagogical skill is defined and characterised as a high level of pedagogical activity. The criteria of pedagogical skill of the teacher are the following features of his activity: humanity, erudition, scientific education, pedagogical expediency, optimal character, efficiency, democracy, creativity, originality [6].

After reading the scientific literature on this issue, we can conclude that pedagogical skills are achieved by awareness of the peculiarities of the pedagogical process, the ability to build and organise it. Therefore, every teacher can learn pedagogical skills and perfection, provided they work on themselves. The formation of such a level of pedagogical activity is possible only from practical experience, which allows to solve organisational, educational issues, taking into account the individual and psychological interests of each applicant together with students.

Criteria of pedagogical skill of the teacher can be: erudition, scientific education, expediency, creativity, humanism, democracy, efficiency, which allow to solve at a high level professional and pedagogical tasks during the educational process.

It is worth agreeing with L. H. Kaidalova, N. B. Shchokina, T. Yu. Vakhrusheva, who define pedagogical skills as a set of certain personality traits due to psychological and pedagogical training and the ability to optimally solve pedagogical problems, has a certain

structure and includes the following components: professional competence, personal qualities, pedagogical technique, tactical pedagogical influence, pedagogical creativity, humanistic orientation, speech culture, pedagogical abilities [7, p.8].

Achieving such results and goals is possible only with the help of professional development of teachers which can be crucial for the effective operation of educational institutions, as the professional level of employees depends on the ability to train high-level professionals.

Purposeful work on the professional development of scientific and pedagogical staff provides the following positive changes:

- the general pedagogical and special knowledge and skills increase, their actualization takes place;
- there are changes in the personal component: motivation for vocational education and self-education;
- there is an adequate self-assessment of their professional competence and personal qualities;
- creative opportunities are revealed, which is reflected in their practical activities;
- the general culture expands [8, p. 101].

In the scientific literature on the field of pedagogy and psychology to the professional development of teachers include the following groups of factors: innovation and technology; organisational and managerial; socio-psychological; financial and economic; political and legal; economic; innovative; globalization and integration [9, p. 78], which encourages the teacher to self-development, self-esteem, self-education, and hence self-improvement.

Outlining the general requirements for the professional skills of teachers, it is worth paying attention to its features for teachers of legal disciplines of educational institutions with specific learning conditions, because, as already noted, most of them have legal education, but engaged in scientific and pedagogical activities and achieve pedagogical skills. they are forced by the need to qualitatively perform their duties to train qualified lawyers, in addition, to remain a capable law enforcement officer.

The scope of tasks and responsibilities of research and teaching staff of educational institutions with specific learning conditions meet the requirements of current legislation of Ukraine in the field of education and provide planning, organisation and control of educational,

upbringing and educationally methodical work in disciplines, develops complexes of educational and methodical providing of educational components, gives lectures, conducts practical and seminar classes, manages course and qualification projects, research work of applicants; ensures the implementation of curricula, development and implementation of educational programs; provides methodological assistance, organises and plans independent work of applicants; provides a high scientifically theoretical and methodological level of teaching disciplines in the full educational program of the specialty, creates conditions for the formation of the main components of competence that ensure the success of future professional activities of graduates.

Due to the fact that an educator of an educational institution with specific learning conditions has a special title and serves, taking into account his own fifteen years of experience in teaching in a police training institution, he is in accordance with paragraph 27 of section 8 of the Law of Ukraine “On Central Executive Bodies” [10], section 72 of the Law of Ukraine “On the National Police” [4] on a permanent basis in order to ensure the ability to perform tasks related to protection of human rights and freedoms, crime prevention, maintenance of public order and security improve their level of knowledge, skills, abilities and professional qualities of a police officer during service training, which includes the following types:

- functional training is a set of measures aimed at the acquisition and improvement of police knowledge, skills and abilities in the field of regulatory and legal support of official activities necessary for the successful performance of their duties;
- general training is a set of measures aimed at acquiring and improving police skills and abilities of practical application of theoretical knowledge on the formation of psychological reliability and resilience, readiness to act in situations of varying degrees of risk, as well as providing home care in the performance of official duties;
- tactical training is a set of measures aimed at acquiring and improving police skills of practical application of theoretical knowledge on the correct assessment of specific events with subsequent decision-making and psychological readiness to act in situations of varying degrees of risk;
- fire training is a set of measures aimed at studying the basics of firearms shooting by police officers, their lawful use (use) and improving the skills of

safe handling, high-speed and accurate shooting at stationary and moving targets, from different positions, for a limited time, in motion, etc.;

- physical training is a set of measures aimed at the formation and improvement of motor skills, development of physical qualities and abilities of a police officer, taking into account the peculiarities of his professional activity.

All types of service training are interconnected [11].

Given the above, a teacher of an educational institution with specific learning conditions should not only improve their professional skills as a teacher, but also engage in their professional level as a police officer, which causes a high level of different types of workload.

Given the urgency of the problem of professional skills of teachers of law in educational institutions with specific learning conditions, features of training for the National Police, the development of police education in Ukraine, analyse the project legislation in this area - Order of the Ministry of Internal Affairs of Ukraine from November 25, 2016 № 1252 "On approval of the Concept of education reform in the Ministry of Internal Affairs of Ukraine" [12], draft Concept of improvement of legal education for professional training of a lawyer in accordance with European standards of higher education and legal profession [13], draft Law on Amendments to Certain Legislative Acts Ukraine on the organisation of professional (vocational) education with specific learning conditions [14].

According to the first project, based on the Concept of Education Reform in the Ministry of Internal Affairs, the basis of educational institutions are higher education institutions with specific learning conditions belonging to the Ministry of Internal Affairs and central executive authorities, whose activities are directed and coordinated by the Cabinet of Ministers through the Minister of Internal Affairs. of which: 7 higher educational institutions of the Ministry of Internal Affairs, which train specialists for the National Police of Ukraine; 5 higher educational institutions of CEB, 2 of which train specialists for the National Guard of Ukraine; 1 - for the State Border Guard Service of Ukraine; 2 - for the State Service of Ukraine for Emergencies. It was also determined that the peculiarity of the educational institutions of the Ministry of Internal Affairs that train specialists of the National Police of Ukraine is the three-level system of professional training of police officers:

1) first level. Initial (initial professional) training directly in higher educational institutions with specific conditions of training of the Ministry of Internal Affairs (university,

academy, institute - further universities of the Ministry of Internal Affairs) and in educational centers (colleges, schools) created on the basis of State Institutions "Police Training Center" that are subordinated to universities of the Ministry of Internal Affairs are their structural educational subdivisions with the status of a separate legal entity. The subordination of these institutions of the Ministry of Internal Affairs is based on the observance of the principle of regional location, which ensures the proximity of the educational institution to the customer.

2) second level. Training in higher educational institutions of the Ministry of Internal Affairs of Ukraine, which is carried out in accordance with the first level of training programs for specialists of junior bachelor's and bachelor's degrees, with business trips based on the results of state certification to staff etc.

Recruitment will be conducted on a competitive basis on the basis of complete general secondary education, higher non-legal education with a bachelor's degree, as well as on the basis of the first level qualification "police officer" (with a positive character and willingness to work in middle management).

3) Training, retraining, advanced training of the current staff in accordance with the training programs. Thus, its content does not define the areas of training and specialties in which training will be carried out.

This becomes especially relevant in view of the Draft Concept of Improving Legal Education for the Professional Training of Lawyers in accordance with European Standards of Higher Education and the Legal Profession. This project, in particular, provides for the introduction of a standard of legal (law) education. Thus, the legal professions are judge, lawyer, prosecutor, notary [13]. As we can see, in the second direction of legal education reform, there are no police officers (and even investigators) among the list of legal professions, and therefore, police officers may change their legal profession to another specialty in the future. It should also be noted that the Concept fragmentarily reveals the features of police training in higher education institutions with specific training conditions that carry out their training.

In turn, the Law of Ukraine "On Higher Education" in part 4 of Article 13 "Powers of the central executive body in the field of education and science, other agencies, the management of which includes higher education institutions" stipulates that state authorities to the management of which belong higher educational institutions with specific learning conditions, have the right by their acts to establish special requirements for:

- 1) management of the relevant higher education institution with specific learning conditions;
- 2) activities and powers of the Academic Council;
- 3) candidates for the positions of heads of relevant higher educational institutions with specific learning conditions, their structural subdivisions and the procedure for their appointment;
- 4) practical training of persons studying in relevant educational institutions with specific learning conditions;
- 5) the procedure for filling vacant positions of command and scientific and pedagogical staff;
- 6) realisation of the rights and responsibilities of scientific and pedagogical workers and persons studying in higher educational institutions with specific learning conditions;
- 7) the procedure for expulsion, interruption of studies, renewal and transfer of persons studying in higher educational institutions with specific learning conditions;
- 8) training of scientific-pedagogical and scientific personnel in postgraduate (adjunct) and doctoral studies of relevant higher educational institutions [15].

Thus, the normative consolidation and detailed disclosure at the departmental level requires, first of all, a clear delineation of the network of educational institutions, educational levels of training and features of training. All this applies to the training of police personnel in higher education institutions with specific learning conditions, which belong to the sphere of management of the Ministry of Internal Affairs of Ukraine, as well as the teaching staff.

### **Conclusion**

Summing up, it is desirable to draw attention to the fact that integration of Ukraine into the EU should provide for the adoption of European experience, in particular, in the field of police training. The assistance and experience of the police of other countries is, of course, useful and expedient for Ukraine, but Ukraine's European integration requires the study and implementation of their achievements, which have successfully transformed the law enforcement education system, raising it to a qualitatively new level in the EU.

Perspectives for further development in this area are seen in studies of the legal status of higher education institutions with specific learning conditions that provide police training, increasing the role of practical training in the educational process, widespread use of interactive methods during education, reducing the workload of teaching staff, which is involved in daily work and protection of public order. All these issues require reform of the training of lawyers in Ukraine. In the long run, this will allow standardizing and clearly outlining the specifics of training in such institutions.

I would like to pay special attention to the requirements for the educational process of teachers of law, to achieve the training of qualified lawyers: the list of subjects should be determined by educational institutions together with employers; working curricula are developed by the educational institution together with enterprises-customers of workers and agreed with the regional education authorities, taking into account the professional skills of the teaching staff of the educational institution with specific learning conditions.

### **Literature**

1. I.V. Lagutina Personal non-property labor rights of workers in the system of labor rights: monograph. Odessa: Phoenix, 2014. 426 p.
2. Yu. P. Orlovsky Legal regulation of training and distribution of personnel. Moscow: Jurit. lit., 1983.
3. On higher education: Law of Ukraine of 01.07.2014 № 1556-VII // Bulletin of the Verkhovna Rada of Ukraine of 19.09.2014. - 2014. - № 37-38. - P. 2716. - St. 2004.
4. On the National Police: Law of Ukraine dated 02.07.2015 № 580-VIII // Bulletin of the Verkhovna Rada of Ukraine dated 09.09.2015. - 2015. - № 40-41. - S. 1970. - St. 37
5. Yu. A. Chuprina Some topical issues of professional development of scientific and pedagogical workers in the aspect of international cooperation. Prykarpattya Legal Bulletin. 2019. Vip. 1 (26), T. 2. S. 41-44.
6. S. Goncharenko Ukrainian pedagogical dictionary. - Kyiv: Lybid, 1997. - P. 251.
7. L. G. Kaidalova, Shchokina NB, Vakhrusheva T. Yu. Pedagogical skill of the teacher: Textbook. - H.: NUPh Publishing House, 2009. - 140 p.
8. Yu. A. Chuprina On the question of forms of professional development of scientific and pedagogical workers. Law and innovation society. 2019. № 1 (12). Pp. 99-103.
- A. K. Markova Psychology of professionalism. Moscow: Knowledge, 1996. 308 p.

9. About the central bodies of executive defect: Law of Ukraine of 17.03.2011 № 3166-VI // Bulletin of the Verkhovna Rada of Ukraine of 23.09.2011. - № 38. - P. 1969. - Article 385
10. Regulations on the organization of in-service training of employees of the National Police of Ukraine. Approved by the order of the Ministry of Internal Affairs of Ukraine dated 26.0.2016 № 50 [Electronic resource]. - Access mode: <https://zakon.rada.gov.ua/laws/show/z0260-16#Text>.
11. On approval of the Concept of education reform in the Ministry of Internal Affairs of Ukraine: Order of the Ministry of Internal Affairs of Ukraine dated 25.11.2016 № 1252 [Electronic resource]. - Access mode: [http://search.ligazakon.ua/l\\_doc2.nsf/link1/MVS675.html](http://search.ligazakon.ua/l_doc2.nsf/link1/MVS675.html).
12. Draft Concept of improvement of legal (legal) education for professional training of a lawyer in accordance with European standards of higher education and legal profession [Electronic resource]. - Access mode: <http://goo.gl/qJ7QWY>.
13. Draft Law on Amendments to Certain Legislative Acts of Ukraine Concerning the Organization of Activities of Vocational (Vocational and Technical Education Institutions) with Specific Conditions of Training [Electronic resource]. - Access mode : [http://w1.c1.rada.gov.ua/pls/zweb2/webproc4\\_1?pf3511=70014](http://w1.c1.rada.gov.ua/pls/zweb2/webproc4_1?pf3511=70014).
14. On higher education: Law of Ukraine of 01.07.2014 № 1556-VII // Bulletin of the Verkhovna Rada of Ukraine of 19.09.2014. - 2014. - № 37-38. - P. 2716. - St. 2004.

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## **THE RESEARCH COMPETENCE DEVELOPMENT IN STUDENTS – BIOLOGY MAJORS OF THE FIRST (BACHELOR’S) LEVEL OF HIGHER EDUCATION**

### **Summary**

The main stages of the research competence development in students who major in biological sciences include targeting the goals of laboratory and practical sessions at research; conducting scientific research within the practices of biological science; participating in scientific research and projects of academic departments, functioning of a student scientific society, scientific workshops, functioning of scientific and research laboratories and centers; exchange of experience with academic community, biologists-practitioners; motivation to continue studies to obtain the second and the third levels of higher education.

**Key words:** research competence, higher education seekers, biology students

### **Introduction**

The tendencies of industrial and scientific development of Ukraine, the need to modernize biological research highlights the need for a new generation of biologists with modern methods of cognition, the ability to present, interpret and use the results of biological research, monitoring and evaluation of the environment, environmental protection. Future biologists must acquire knowledge about the vital structure, functions and patterns of biological systems of different levels of organization, their interaction with the environment, reactions under different living conditions, as well as at different stages of ontogenesis, phylogeny and succession dynamics; biodiversity and evolution of living systems; the importance of living beings in the biosphere, biotechnology, economy, and healthcare. The most important skills among students who major in biological sciences are practical skills and abilities to study and

assess the condition of biosystems at different levels of the organization; presentation, interpretation and use of the results of biological research, i.e., the research competence development.

### **Purpose, scope and research method**

Objective: to discover the peculiarities of the research competence development in students who major in biological sciences of the first (bachelor's) level, to analyze the best practices on this issue; to determine the main stages of the research competence development in university students with a major in biological sciences.

Research topic: the scientific and research competence in students who major in biological sciences and the ways of its development.

Research methods: theoretical (analysis of literature for studying the condition of the theoretical problem elaboration, comparative analysis, summarization of available experience for determination of theoretical and methodological research problems); empirical (diagnostic) questionnaires, experimental (ascertaining and formative experiment) methods.

The works of Irina Soloshich [2014] and Natalia Kononets [2016] were used for the quantitative assessment of the general level of research competence. The integrated indicator was calculated as the arithmetic mean of the levels of the cognitive level and research competence of students who major in biological sciences, motivational, operational, project, research and result evaluation components.

### **Result and discussion**

Pursuant to the Law of Ukraine "On Higher Education" "scientific, technical and innovative pursuits and campaigns in universities are an integral part of educational programs and are carried out in order to integrate scientific, educational and industrial activities in the system of higher education" [2020]. Research competence is general (universal, fundamental), as its development is a required condition for further successful professional activity of the student in various spheres of society and biological field in particular, as well as for their personal development [Shapran Y., 2012]. It corresponds to all the features inherent in key competencies: multifunctionality and universality, supra-subjectivity and interdisciplinarity,

multidimensionality, belonging to the sphere of personal development and others [Dubaseniuk O. A., 2013].

The peculiarities of development of research competence and skills in university students who major in biological sciences are analyzed in the works of a number of the Ukrainian researchers (S. Belkina, L. Horshkova, V. Hrubinko, L. Bondarenko, Y. Kistin, N. Moskaliuk, M. Sydorovych, A. Stepaniuk, L. Koval, Y. Shapran). Despite the significant amount of data accumulated in the literature on the problem of development of research competence in university students, this topic remains relevant today. In addition, the vast majority of these publications relate to the development of research competence in future biology teachers, not biologists (laboratory technicians (biological research)), experts of research and production centers, educational and scientific institutions specializing in biological research, biologists-researchers, professionals in the field of life sciences, etc.). The very term "research competence" needs to be clarified, and the essence and content of this concept need to be specified. This is due to the fact that no regulatory document or recommendations for their writing contain the concept of "research competence". For example, among the general competencies proposed in the list of the TUNING project [2016], research competence is not distinguished as independent. The proposed competencies are essentially similar to research and can collectively constitute it. Thus, in the "Standard of Higher Education of Ukraine" undergraduate students who major in 091 Biology [2019] those competencies are defined as follows: the ability to search and analyze information using various sources, including the results of their own research; the ability to generate new ideas (creativity); the ability to perform professional functions and conduct research at the appropriate level in the field of biological sciences and similar branches; the ability to act in compliance with moral and ethical norms of professional activity and intellectual honesty; ability to make decisions in complex and unpredictable conditions, which requires the application of new approaches and forecasting; the ability to think critically, analyze and synthesize information in the field of biology and similar branches; the ability to develop and manage projects, conduct patent searches and prepare patent documentation; the ability to use modern information technologies and analyze information in the field of biology and similar branches.

The analysis of scientific achievements of scientists allows to make a generalization that research competence is a constant, integrative, qualitative characteristic of personality, which combines special knowledge, skills, motivational and personal qualities, values and active research position; provides some research experience in the field of biological research;

manifests itself in the willingness and ability to conduct their own research in typical and non-standard conditions [Fitsula M., 2006]. This competence includes three main interrelated components: cognitive, prognostic, and organizational. The cognitive component is characterized by the ability to learn, actively acquire knowledge (systematization, classification, generalization, separation of patterns) in order to apply them in research. The prognostic component involves knowledge, skills and abilities of prediction, evaluation of results related to the predicted research process, streamlining the components of an integral study in a logical sequence, anticipation of possible complications. The organizational component includes knowledge about the organization of the research process, its procedure, a set of skills and abilities in the application of various research methods (both theoretical and empirical) [Sydorenko V., 2010].

We shall consider the peculiarities of research competence development in undergraduate students of the first (bachelor's) level of higher education in the educational program "Biology" at Zhytomyr Ivan Franko State University. The educational program requires 7200 hours (240 ECTS credits), 60 of which (180 hours) - elective components and 18 ECTS credits are allocated for academic internships and 6 credits for field internships in biology. The objectives of the educational program are to train experts capable of solving complex specialized problems and practical problems in the field of biology or in the learning process, characterized by complexity and uncertainty of conditions and involve the application of laws, theories and methods of natural sciences. Their implementation is possible only through the development of research competence in students.

The main forms of training used in the course of training students are lectures, laboratory classes, practical sessions, seminars, workshops, consultations, independent and individual work, assessment sessions. The traditional system of teaching and learning methods are used as well as innovative educational technologies. Among them are interactive and problem-based learning, research (laboratory and field research), experimental, heuristic, explanatory-illustrative, ICT, modeling, portfolio, case studies, methods of statistical processing of experimental data, use of information and communication technologies using modern devices and equipment for laboratory and field research, information technology of data processing and computer tools, etc. At the same time, while studying professional biological disciplines, students master the methods of biological research: observation, monitoring, modeling, microscopy, comparative, statistical, etc. They are targeted at students who seek to become

experts in biology and related sciences and allow graduates to develop the ability to research and assess biological systems of different levels of organization with further implementation of achievements in production and social spheres, to form interest in advanced study of separate branches of biology. Encouragement to participate in research projects creates the conditions for a high level of self-fulfillment among students in the process of obtaining higher education. The development of research competence occurs in certain stages:

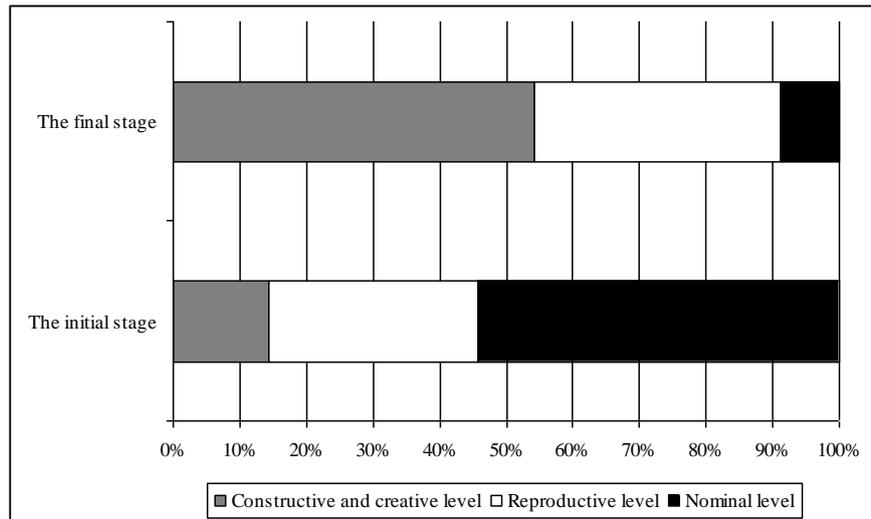
- The first stage: targeting plans of laboratory and practical classes at research, directed on the organization of supervision and monitoring over the condition of environment; conducting laboratory and field experiments with special emphasis on the development of skills to work with microscopic and research equipment. It also includes the use and promotion of the latest scientific and information technologies.
- The second stage: scientific research within the framework of educational (field training practices in botany, zoology, plant physiology and genetics) and field internship in biology. It takes place in laboratories and during excursions at the departments, agrobiological station of the university, during field trips to natural biocenoses, scientific and research institutions and laboratories, protected areas (reserves, national parks, etc.).
- The third stage: participation of students in research and scientific projects of departments, seminars, round tables within the activities of the student scientific society of the Faculty of Natural Sciences. Students have the opportunity to conduct research in scientific workshops: "Hydrobiological Research of Zhytomyr Polissia", "Botanical Workshop", problem groups: "Influence of physiologically active substances on the growth and development of higher aquatic plants", "Structure and functioning of phytoplankton in different water reservoirs in Polissia" "Solving genetic problems of increased complexity", "Problems of modern biotechnology", "Invasive human diseases".
- The fourth stage: participation in research laboratories and centers (world-famous Zhytomyr scientific malacological school, research and coordination malacological center, research laboratories "Ecological parasitology", "Hydroecological problems of Polissia" (in affiliation with the Institute of Hydrobiology of NASU), "Ecosystem Theory", "Analysis and examination of biotic resources." There is an opportunity to participate in competitions of student research papers and biology competitions.
- The fifth stage: exchange of experience with the academic community of Ukraine and European countries - experts from scientific institutions of the National Academy of Sciences of Ukraine are involved in lecturing, advising students who carry out research work (project

"The Invited Professors"); constant exchange of experience with the foreign academic community and biologists-practitioners of biological, industrial and medical laboratories.

- The sixth stage: publishing which entails cooperation with scientific supervisors of course, qualification papers, or scientific workshops and problem groups which publish results of student scientific researches in periodicals, collections of works, materials of all-Ukrainian and international conferences. Every year the university holds an All-Ukrainian scientific-practical conference "Biological Research" where students and scientific and pedagogical experts, and scientists have the opportunity to highlight the results of their research in the field of biology.
- The seventh stage: development of research competence while continuing education in the educational program "Biology" at the second (Master's) and third (PhD) educational-scientific levels of higher education, which complies with the principle of a lifelong learning.

The development of research competence in students is possible thanks to material and technical equipment of classrooms and laboratories which includes: lecture halls equipped with multimedia equipment; computer classes with Wi-Fi access; specialized rooms, including a biology room with an interactive whiteboard; research laboratories; specialized laboratories and departments of the university's agrobiological station, the Museum of Nature, which has numerous exhibits of invertebrates (including one of the largest Ukrainian collection of mollusk shells), birds and mammals; herbarium, collection of minerals.

Determining the levels of research competence development in students who major in biological sciences [Soloshych I., 2020] was carried out in two stages: during the admission campaign and upon completion of the bachelor's program based on an integrated indicator, which captures the overall level of research competence using developed diagnostic tools. The summarized results of ascertaining diagnostics of the level of research competence in undergraduate students are shown in Fig. 1



**Figure 1. Distribution of levels of formation of research competence in applicants for bachelor's degree in higher education, who study in the educational program "Biology" at the initial and final stage of the study**  
*Source: Own survey among students of Zhytomyr Ivan Franko State University (2017–2020)*

The cognitive level of research competence development in undergraduate students who are enrolled in the educational program "Biology" includes the ability to conduct scientific research, systematize and analyze scientific knowledge, readiness for creative search, processing and reasonable use of information. The nominal level of formation of the cognitive criterion of research competence development in future biologists implies such readiness, but students can carry out research activities only under the guidance of an instructor according to the proposed algorithm. Biology students have a reproductive level who can receive, systematize and analyze scientific knowledge, but do not yet have the ability to scientific creativity. Students with a constructive and creative level of research competence according to the cognitive criterion demonstrate independence, readiness to search, receive, analyze, process with the help of information technologies reasonably using scientific information.

The components of the motivational and stimulating criterion for research competence development in future biologists are scientific and cognitive needs and motivation of scientific research, the desire for self-fulfillment and self-improvement through research. The nominal level of formation of the motivational-stimulating criterion of research competence in biology students is characterized only by the fragmentary need for research activities in the field of biology. In the event there is desire to conduct it, they do not seek to fulfill themselves in research activities. The reproductive level presupposes a sufficient formation of needs in conducting research activities in case of unwillingness to show strong-willed efforts to overcome obstacles to achieving the set goals. Applicants with a creative and constructive level,

who have developed stable scientific and cognitive needs and motivation for scientific research, the ability to self-fulfillment through research, are characterized by strong-willed efforts.

The operational criterion for research competence development in undergraduate students enrolled in the educational program "Biology" was defined as the ability to formulate a research problem and bring it to the task, as well as the ability to adjust and use appropriate equipment and materials. Biologists-to-be with insignificant manifestation of skills of formulation of a scientific problem and a hypothesis have the nominal level of formation of this criterion. They have little research skills, they cannot conduct research on their own using appropriate materials and equipment. Students with a reproductive level of the criterion have a higher, but not sufficient, level of ability to conduct research, as well as the ability to adjust the appropriate equipment with the help of an instructor. Students with a constructive and creative level of formation of research activities according to operational criteria are able to independently plan and carry out research, adjust equipment, design an experiment.

The project and research criterion for research competence development in future biologists includes such indicators as the ability to design research activities, plan and coordinate their research activities and independently conduct experiments. Students who are able to independently conduct experiments in the field of biology and require constant scientific support have the nominal level of formation of this criterion. Students with certain skills to design and carry out research activities, but need advice from instructors on the methodology of research, its organization and evaluation of results, although they can independently perform simple experimental research, have the reproductive level of this criterion for research competence development. Students with a constructive and creative level of this criterion can independently conduct experiments in the field of biology.

The evaluation criterion includes the ability to process and analyze the obtained results of biological research, the ability to present the obtained result and lead a scientific discussion. The nominal level of formation of the result-evaluation criterion of research competence is characterized by a partial ability to process and analyze the results of scientific research. Applicants have some difficulty in drawing conclusions, but can do so with the help of an instructor, without being able to have a scientific discussion. The reproductive level of formation according to the result-evaluation criterion is characterized by a partial ability to process and analyze the obtained results of biological research and contemplate appropriate conclusions. Such students may have a scientific discussion, but have difficulty doing so.

Students with a constructive and creative level of formation of the project-research criterion of research competence are able to participate in scientific discussion confidently, substantiate and interpret the results of biological research.

The results of the ascertaining diagnostics indicate that a low percentage of first-year students, who have enrolled in the educational program "Biology," have profound knowledge that would allow independent scientific research, setting a clearly defined purpose, objectives, the need for scientific research, project activities, the need for self-development and self-improvement. At the time of graduation, graduates mostly have a fairly deep knowledge, experience of research and ability to carry it out, developed skills for self-assessment, self-development in order to improve their professional qualities.

We believe that the increase of students with constructive and creative level of research competence at the final stage of education in the educational program "Biology" compared to the initial 14% and the simultaneous decrease of students with a nominal level by 16% indicates high efficiency of research competence development.

### **Conclusions**

1. Based on the analysis of the scientific literature, the main approaches to research competence development in students who major in biological sciences are highlighted. The structure of research competence of students is clarified, which includes cognitive, motivational-stimulating, operational, project-research and evaluation components.

2. The high level of research competence in future biologists who have completed the educational program "Biology" at Zhytomyr Ivan Franko State University has been experimentally confirmed.

3. The main stages of research competence development in undergraduate students have been determined as follows: targeting laboratory and practical classes on research tasks; carrying out scientific research within the framework of educational and industrial practices in biology; participation of students in research and projects of departments, the student scientific society, scientific workshops; work of research laboratories and centers; exchange of experience with the academic community, as well as biologists-practitioners of scientific institutions, industrial and medical laboratories; publishing activity; motivation to continue the studies to obtain Master's and PhD degrees with a major in biological sciences, which corresponds to the principle of a lifelong learning.

### Bibliography

1. Dubasenyuk O. A. 2013. Структура дослідницьких педагогічних вмінь та умови їх розвитку. [Structure of research pedagogical skills and conditions in the activities of secondary and out-of-school educational institutions]. Дослідницький компонент у діяльності загальноосвітніх навчальних закладів та позашкільних закладів освіти. Видавництво інституту обдарованої дитини [Research component in the activities of secondary and out-of-school educational institutions. Publishing House of the Gifted Child Institute], Kyiv. 20–31.
2. Fitsula M. 2006. Педагогіка вищої школи [Pedagogy of higher school]. Akademydav, Kyiv.
3. Kononets N. V. 2016. Основи ресурсно-орієнтованого навчання дисциплін комп'ютерного циклу (з досвіду аграрних коледжів) [Fundamentals of resource-oriented teaching of computer cycle disciplines (from the experience of agricultural colleges)]. PUET, Poltava.
4. Shapran Y. 2012. Формування професійної компетентності майбутніх учителів біології шляхом застосування особистісно-орієнтованих технологій [Formation of professional competence of biology teachers through the use of personality-oriented technologies]. *Рідна школа [Native school]*. 11, 42–46.
5. Soloshych O. I. 2014. Застосування науково-дослідницької компетентності фахівцями-екологами в професійній діяльності [Application of research competence by ecologists in professional activities]. *Проблеми інженерно-педагогічної освіти [Problems of engineering and pedagogical education]*. 45, 190–195.
6. Soloshych O. I. 2020. Дидактична система формування науково-дослідницької компетентності студентів екологічних спеціальностей [Didactic system of formation of research competence of students of ecological specialties]. *Вісник Кременецького національного університету імені Михайла Остроградського [Bulletin of Kremenets National University named after Mykhailo Ostrogradsky]*. 2(121), 39–44.
7. Sydorenko V. 2010. Сутнісні характеристики професійної компетентності [Essential characteristics of professional competence]. *Трудова підготовка в закладах освіти [Labor training in educational institutions]*. 5, 3–7.
8. <https://mon.gov.ua/storage/app/media/vishcha-osvita/zatverdzeni%20standarty/2019/11/22/2019-11-22-091>
9. [https://www.unideusto.org/tuningeu/images/stories/documents/General\\_Brochure\\_Ukrainian\\_version.pdf](https://www.unideusto.org/tuningeu/images/stories/documents/General_Brochure_Ukrainian_version.pdf)
10. <https://zakon.rada.gov.ua/laws/show/1556-18#Text>

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## **INTERACTIVE TECHNOLOGIES OF UKRAINIAN LITERATURE TEACHING**

### **Summary**

The proposed study focuses on the advantages and peculiarities of the use of interactive technologies for teaching Ukrainian literature on diachronic and synchronic dimensions. Among the wide range of interactive technologies tools, it is proposed to consider the characteristics of the project-based learning method and web-quest employment. The use of the interactive book options combining a paper medium (a book) and a game component (an interactive application) seems important when teaching modern Ukrainian literature. Theoretical and practical material lets us state that interactive and information technologies in the modern educational process provide the development of cognitive activity and improvement of independent acquisition of knowledge by students.

**Key words:** interactive teaching technologies, a method of projects, a web quest, an interactive book.

### **Introduction**

Taking determinism into consideration, and sometimes imperativeness of globalization processes, socio-cultural transformations, any sphere of social life is experiencing the rapid informatization of society. Having faced with the pressure of general social transformations within a situation of new challenges and risks, educational activities have become especially important and relevant. Since the dominant activity in the field of social production is the production, processing, storage, transmission and use of information, a natural consequence is the computerization and informatization of education. At the same time, education as a guarantor of human capital formation has demonstrated the limitations of exclusively economic

growth and increasing the technical power of society. The intellectual potential development of the nation, provided by education, led to a revision of the forms and content of the educational process in order to improve them. The combination of information, communication and interactive technologies in educational activities correlates with the tasks defined by the National Doctrine of Education: to form a person who is oriented in the realities and prospects of socio-cultural dynamics, prepared for life and work in a changing world; to develop creative abilities, skills of independent scientific cognition, self-education and self-realization of the personality [7]. An effective strategy in achieving the outlined goals of education is the use of interactive technologies in the educational process. After all, such technologies are aimed at developing the skills of critical and creative thinking, the development of the individual creative potential and desire for self-realization.

### **Aim, subject and research methods**

The article aim is to outline the peculiarities and advantages of using interactive Ukrainian literature teaching technologies on the example of the teaching project method, web-quest and the use of an interactive book.

The subject of analysis is interactive forms and methods of learning.

To achieve the article aim, theoretical research methods were used including synthesis, comparison, classification, systematization, generalization that enabled us to reveal the theoretical basis of the problem, to formulate the purpose and conclusions of the study, to take into account advanced pedagogical experience.

The appeal to pedagogical modeling (abstraction, analogy, induction, interpretation, planning, prediction) helped to demonstrate the effectiveness of the use of interactive learning technologies when studying Ukrainian literature. Empirical methods such as surveys, interviews, observations, self-observation, self-assessment, provided a collection of empirical material for the publication preparation.

Interactive learning technologies in a harmonious combination with the possibilities of information technologies and Internet services are the basis for a high quality strategy for the implementation of the modern educational process. Didactic advantages and methodological peculiarities of the technologies implementation fell into the circle of scientific interests of such researchers: Mariia Baida, Konstantin Bakhanov, Roman Gurevych, Myroslav Zhaldak, Maya Kademiia, Alla Kramarenko, Nataliia Morse, Valentyna Palamarchuk, Yevheniia Polat, Olena

Pometun, Svitlana Sysoyeva, Nelia Skrypnyk and others. Larysa Kovalchuk in the article "Pedagogical interaction of teachers and students when using new information technologies in the process of pedagogical disciplines learning", based on the National Doctrine of Education, rightly mentions that "the priority of education at the present stage is the introduction of modern information technologies. providing further improvement of the educational process, accessibility and effectiveness of education, preparation of the younger generation for life in the information society" [6, p. 17].

The advantages of interactive learning become apparent when compared with traditional forms of learning. This fact has repeatedly drawn the attention of scientists (for example, the study of Olena Pometun [8]). Interactive technologies ensure the formation of a democratic, equal partnership between all participants of the educational process because under such conditions the teacher acts as an organizer, consultant and facilitator of the discussion. It leads to a situation of success where the student demonstrates mobility and ability to process information flows critically. The use of interactive technologies and Internet services in the educational process contributes to the formation and improvement of information, communication, project and media competencies.

Modern literary education, regardless of the level of education, is characterized by modernization and innovative renewal. Apart from dialogism and the development of critical thinking, the potential of personal orientation (existentiality) of literary education, interactivity, intersubjectivity, contextuality, integration and informatization of literature teaching are considered to be productive theoretical principles of modern literary education. Undoubtedly, the proper formation and development of reading competence depends on many factors, among which a special role belongs to literary education. According to Tamila Yatsenko, subject reading competence as an integrated result of educational achievements in its structure is represented by general cultural, literary, interpretive, axiological and creative-speech components [12, p. 6-7]. Thus, reading is understood as an intellectual and emotional activity of the individual, his/her interaction with the book as a source of new knowledge, emotional empathy and aesthetic pleasure. However, it is necessary to state the existence of fierce competition of the paper book with modern e-devices, attempts to push it to the margins of culture. The classic linear text of the book that appeals to the intentional and logocentric matrix of reading, is in a losing position and needs an innovative addition aiming to overcome the broken communication between the recipient and the text, between the reader and the author.

Let us note that the development of communication between the recipient and the text happens due to literary education. Its thoroughness and integrity are achieved owing to the employment of interactive learning technologies. A teacher of philology out of the fundamental knowledge of the subject needs a well-formed didactic competence. The arsenal of the modern teacher currently has a huge pedagogical toolkit of teaching methods. In this respect, the methods of interactive learning technologies are conventionally divided into interactive technologies of cooperative learning, interactive technologies of group learning, situational modeling technologies and technologies of controversial issues. In regard to my own teaching experience, as well as studying the best practices of fellow philologists, we believe that effective teaching methods in literary education are as follows: modeling specific situations, project methods, brainstorming, problem analysis, discussion of the issue in the form of debate, discussion, "decision tree", "aquarium", "carousel", web-quest technology and others. The effectiveness and productivity of these technologies will be demonstrated within the educational component of "Modern Ukrainian Literature".

In order to develop creative abilities of applicants, it is advisable to use the method of projects being an alternative tool to classroom learning. To achieve specific educational goals, the project method as a personal developmental pedagogical technology involves a clear and consistent implementation of the target, motivational, semantic, operational, control and regulatory and reflective components. In addition, as noted by Nataliia Tarapaka and Nataliia Haharina, it is important to adhere to the basic principles that will help to direct activities properly, in particular: predictability; feedback; cultural analogy (focus on the achievements of mankind); self-development; humanization; motivation of educational and cognitive activities; optimization; activity, consciousness and independence [9]. Thus, the project activity is aimed at the development of scientific thinking, improving the cognitive abilities of applicants, because it involves the search and processing of information from various sources, the systematization of a certain amount of knowledge. However, we emphasize that in the process of implementing this technology the teacher stimulates the cognitive activity of applicants and acts as a facilitator, while the initiative, the choice of presentation and argumentation forms remains the prerogative of the applicant. An individual educational project is a means of self-determination that is characterized by individual character, reliance on personal experience, development of reflective skills, various forms of presentation, coordination of individual values, meanings when carrying out intellectual work. In particular, Raisa Shulyhina noted that "the project method is a didactic tool for activating students' cognitive activity, a means of

developing creative thinking and forming personal traits defined in them. The method is based on three vital things such as independence, activity, efficiency "[10, p. 225].

From the idea to the implementation of the project there is an improvement of applicants' critical thinking, cooperation, communication, argumentation, synthesis and stability under a limited time and a specific goal. For example, studying the works of modern Ukrainian writer Yaroslav Melnyk, applicants prepare and defend information projects on the following topics: "Genesis of the genre of anti-utopia in Ukrainian literature", "Genre of anti-utopia in modern Ukrainian literature", "Signs of anti-utopia in the novel by Yaroslav Melnyk or Post-fascism ", "Signs of anti-utopia in the novel "Far Space" by Yaroslav Melnyk ", "Creative work of Yaroslav Melnyk in the discourse of modern Ukrainian fiction "and others. Such projects require the study of a significant number of sources, the use of analysis and synthesis, systematic correction during its preparation. According to their content, information projects are structured clearly. At the first stage of the project, students determine its aim, process various sources of information (scientific literature, media materials, blogs, interviews, literary reviews, etc.), process facts (analysis, generalization, comparison, conclusions). The second stage of the information project implementation involves the choice of results presentation to the student audience (presentation, abstract, report, video, etc.) and design of the collected material in accordance with the requirements. The third stage is the presentation and discussion of the information project. Given the fact that the application of the project method is aimed at meeting the individual scientific interests of the applicant, it is advisable to pay attention to the fact that the effectiveness of its implementation depends on the prior training of the student. High quality project activity directly depends on previously formed competencies, in particular, critical thinking, creativity, communication and teamwork.



**Picture 1. A front project slide made by the student Anna Petrovska.**



Picture 2. A project slide made by Anna Petrovska.

The use of interactive technologies is effective in the organization of independent work of students improving the quality of individual work. The application of web-quest technology contributes to the proper solution of complex educational tasks. Its methodological substantiation was developed by Bernie Dodge and Tom March in 1995 [2]. The use of this technology makes possible to integrate the possibilities of the Internet into the educational process as much as possible “providing an opportunity to increase students' interest in studying the discipline, accelerate motivation to learn, use different types of information (text, graphics, audio, video, etc.), present various situational tasks visually, develop creative thinking and skills of solving problem situations and form informational culture” [3, p. 171]. The criteria for classifying web quests are the duration of carrying out, subject content and task types. They are divided into short- and long-term; mono- and interdisciplinary. When developing a web-quest, different types of tasks can be used including an analytical task, a journalistic investigation, a mysterious story and scientific research. You can also get the result of a web quest in various forms, such as a poster, photo report, database creation, online interview with a virtual character, presentation, publication of web pages or blogs.

Analyzing and summarizing scientific and methodological research on the web-quest, Tetiana Zubekhina identified its main elements:

Web-quest elements	Characteristic
Introduction	Goal formation, description of the main roles of the participants, work plan, web-quest scenario.
Tasks	A problem or puzzle that needs to be solved. The position to be formulated and defended. Product to be created (abstract, report, presentation, poster, etc.).
Implementation	Detailed description of the main work stages, useful tips for collecting and processing information.
Evaluation	Description of criteria and evaluation of the web quest. Evaluation criteria depend on the type of tasks.
Conclusions	A short and content description of what the students learned by completing the quest.
Used resources	Links to sites that have been used to create a web quest.

Teacher's comments	The quest value. Age category of participants. Expected results. The process of organizing work on a web quest. Necessary resources for the work.
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**Picture 3. The main web-quest elements proposed by T. Zubekhina [3, p.172].**

The organization of individual work of students in the process of studying disciplines within the modern literary process is associated with the search and critical analysis of information from various sources. Diversification of individual work organization forms helps to maintain students' interest and attention to the study of the material. Thus, the use of web-quest technology is productive when studying the achievements of the Zhytomyr prose school. Students summarize and catalog information about its representatives, conduct online interviews with the heroes of literary works of the Zhytomyr prose school, prepare presentations about the importance of the Zhytomyr prose school in the literary process. This technology can also be used in the study of other literary groups, such as: "Bu-Ba-Bu", "Lu-Ho-Sad", "Red Fira". Thus, a well-formed didactic competence of a teacher of philology with a priority of interactive technologies contributes to high quality literary education. After all, the cognitive interest of students is not lost, information culture is formed, critical thinking skills are improved and research competence is developed.

At the same time, we also emphasize that communication between the reader and the author. It is extremely important in literary education. The establishment of such communication is based on the main ideas of Umberto Eco that are reflected in the study "The reader's role. Research on the semiotics of texts". The author draws attention to the importance of the text semiotic strategy "to make your text communicative, the author must believe that the ensemble of codes he relies on is the same as the ensemble of codes shared by his potential reader" [4]. The author must not only capture but also retain his reader. Only under such circumstances the harmonious effectiveness of the triad "author - text - recipient" will be restored. One possible solution to this problem is an interactive book that combines paper and a game component: «An interactive book can fulfil this function being a traditional information medium. It is related to a game employing a tablet or smartphone. Gadgets provide an interaction with some interactive book elements. It enables a reality modelling. That's why a reader can communicate both with the author who generated the text and characters going beyond the generated text. They become a part of alternative reality» [11, p. 48].

Ukrainian interactive books are primarily related to children's books publishing. In 2012, the Kyiv publishing house A-BA-BA-HA-LA-MA-HA created an interactive book "The

"Snow Queen" in three languages having an audio version that makes possible to improve your reading skills. It also promotes intellectual development because it contains coloring pages, puzzles of three levels.

In 2014, the Odessa publishing house Gutenbergz developed an interactive application "Gadgetarium". It enables people not only to read information, but also move objects by means of a gadget (mobile phone, tablet). In such a way, the student from a passive acquirer of knowledge becomes an active participant of the educational process. In 2017, this publishing house also developed the educational platform "Pidruchnyk.ua" containing interactive school textbooks.

A number of interactive children's books are also worth noting. Thus, the first interactive fairy tale was a book in a multimedia format "Kotyhoroshko". Interestingly, the audio version of the tale is voiced by professional actors. Ukrainian folk tales continue to be a good platform for creating an interactive book ("Fox and Crane", "Cat and Mouse" - developed by ZZWolf Official, "Glove" - publishing house "Bohdan"). Author's books for children and about children include an interactive version of Svitlana Dorosheva's book "Mom hurries home", an appendix in Ukrainian, English, Russian "Come to visit" based on "Books" by Olha Cherpanova and Katia Halytska.

The illustrations were made by Olha Dehtiarivna, a joint project of the couple the Lavrenishyn "Liuba Zhuzha" and others.

In 2011, an interactive book "for adults" was published. First of all, it is Olena Zakharchenko's audiobook and the book "Crack 69" from Corleon Global Publishing House.

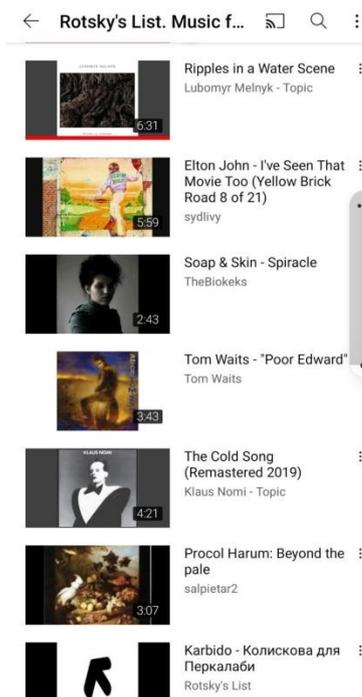
In 2019, a book with an interactive application by Max Kidruk "Until the light goes out forever" was published by the Family Leisure Club Publishing House. In the preface to the novel, the author states: "Bringing fragments of text outside the main block allows you to create a truly nonlinear plot. The novel was linear in one way or another, but now with a mobile application, its structure becomes tree-like: branches are added that describe supporting characters, reveal invisible connections, show this or that episode from a completely unexpected side" [5, p. 6]. Thus, Max Kidruk offers the reader eight icons that are scattered throughout the text letting you visualize the places where the events develop in the novel. In addition to the icons of the place, he introduces into the text four more important marks, under which "hidden" "... four bonus stories that give great depth to the main story..." [5, p. 6]. Also, one of the icons sends the reader to the Facebook site, where he can communicate with the hero of the previous novel by Max Kidruk "Do not look back and be silent."



**Picture 4. Interactive icons from Max Kidruk's novel.**

Yurii Andrukhovych also offered a novel with interactive accompaniment. In 2021, Merydian Chernovits Publishing House published the novel "Radio Night" containing a QR code for accessing the music program Rotsky's List. The author offers the reader a list of musical compositions for nothing listening. We have a double game because, on the one hand, in the novel Joseph Rotskyi not only tells his story on the night air, but also accompanies it with musical compositions in accordance with his own mood. In the first address, he creates an atmosphere that attracts the listener because it is a radio for those who: "reached the limit / crashed into a dead end / see nothing ahead / do not sleep at night / never sleep at all / do not sleep and think / lie motionless with open eyes" [1, p. 11-12].

Joseph Rotsky's biography also appears through the prism of the author's vision: "The International Interactive Biographical Committee (IIC) is an institution so influential and respectable that I have been fighting for the right to become its corresponding member for two decades," he instructed me to write an extended and commented biography of Joseph Rotskyi "[1, p. 13]. This role of the omniscient narrator, which is taken over by the narrator of the story / the author himself suggests that Yurii Andrukhovych offers the reader musical tracks that correspond not only to the mood of the protagonist but also himself. By the way, the previously mentioned Max Kidruk accompanies each of his books with a list of musical works recommended for listening while reading.



**Picture 5. Audio application of music tracks to Yurii Andrukhovych's novel.**

The focus group of higher education students who participated in the proposed experiment during the study of the discipline "Modern Ukrainian Literature" was divided into two micro-groups. The micro group № 1 was offered to read novels by Max Kidruk and Yurii Andrukhovych without the use of interactive tools. Students of the micro group № 2 used interactive applications.

The survey after the experiment revealed that the visualization of the scene, the ability to communicate with the hero of the novel on Facebook (the novel "Until the light goes out forever") and musical accompaniment (the novel "Radio Night") gave readers a sense of reality. A space of trust between the author and the reader has been formed - the interactive application and gadget are redirected from the imagination the text appeals to, to the photo or music almost in real time.

### **Research results**

The use of interactive technologies when studying Ukrainian literature makes possible to express the educational process. Observations and surveys of students, self-assessment let us state that the use of interactive technologies, in particular the project method, web-quest technology in combination with the introduction of an interactive book or book products with interactive applications improve learning, significantly increase motivation, intellectual and emotional activity of students.

## Conclusions

The use of interactive and information technologies in the modern educational process provides the development of cognitive activity and improvement of independent knowledge acquisition by students. The emphasis is also shifted to the student because the quality of the mastered material depends on his initiative, the level of information competence formation. The growing capabilities of the Internet, the production of new types of modern Internet services, rapid modernization and informatization of the educational space are accompanied by the problem of finding reliable information, assimilation of a huge amount of information. The formation of information culture is based on the skills of critical and creative thinking, the ability to find ways to solve problems in general. The importance of literary education does not require additional justification or explanation. At the same time, the problem of non-reading adds relevance to literary education because talking about high quality literary education beyond reading seems pointless. The intellectual and emotional activity of the student with the book competes with other sources of information. Therefore, the modern educational activity of the philologist, on the one hand, focuses on solving the problem of non-reading, and on the other hand - aims to develop the research and creative potential of the student. High quality literary education appeals to the developed reading competence. Its purpose is to establish communication between the reader and the text. The fascinating book world keeps its reader owing to the effective work of a philologist. The implementation of modern information and network technologies into the educational process requires the renovation of traditional teaching forms and methods with innovative interactive technologies. Let us note that the didactic competence of the teacher-philologist is based on the principle of the golden ratio because it is only necessary to give priority to one of the technologies, so we will immediately have new problems.

The quality of learning acquisition is significantly improved when using interactive learning technologies that eliminate the inactivity of the student. The effectiveness and productivity of interactive technologies implementation within own pedagogical activity was tested during teaching the educational component "Modern Ukrainian Literature". However, in order to ensure the development of creative and cognitive abilities of students, it is appropriate to organize training through the method of projects making possible, on the one hand, to meet the individual interests of students, and on the other hand to improve information retrieval and critical thinking skills, ability to present research results and demonstrate a tolerant attitude to

the opinion of others. Web quest technology is a bit more complicated to use. It requires a pre-formed high level of information competence of both the teacher-philologist and the students. Creating a web-quest is a labor-intensive process and requires a lot of effort, but the results of this technology show an increase in motivation to learn, develops skills to find a solution to the problem, prepares to work in the information environment.

Overcoming the broken communication between the reader and the author is based on changing the text format. The interactive accompaniment of the book enhances communication between the text and the reader, creates a sense of reality of what is written. Such books are just beginning to appear but are quickly gaining readers. In his work, the modern Ukrainian writer Max Kidruk addresses the understanding of current social issues, namely adolescent bullying, alienation in the family between the older and younger generations and domestic violence. They are fixed as a norm of behavior etc. At the same time, his reader is not only immersed in complicated social problems acquiring soft skill skills when reading the book, but also enjoys multi-level communication with the text (traditional paper media, gadget, the ability to visualize the plot with book trailers). Yurii Andrukhovych also offered his reader an interactive accompaniment in the form of a QR-code referring to selected music tracks that allow you to feel the story of the protagonist more deeply as well as to understand his personality. Involvement of such books in the educational process, the analysis of genre peculiarities and creativity in general, representatives of the modern Ukrainian literary process by means of interactive technologies contribute to improving the quality of literary education.

### **Bibliography**

1. Andrukhovych Yurii. *Radio Night: a novel*. Chernivtsi: Merydian Chernivtsi, 2021. 546 p.
2. Dodge B. *Some Thoughts About WebQuests* [Electronic resource]. Access mode: [http://webquest.org/sdsu/about\\_webquests.html](http://webquest.org/sdsu/about_webquests.html).
3. Zubekhina T.V. Using web-quest technology in e-learning. *Pedagogy of creative personality formation in higher and general education schools: coll. A.V. Sushchenko (editor in chief) and others*]. Zaporizhia: CPU, 2019. Issue. 66. T. 1. P. 170 - 173.
4. Eko U. *The Role of the Reader. Studies in Semiotics Texts*. Lviv: Litopys, 2004. 384 p. [in Ukrainian].
5. Kidruk M. *Until the light goes out forever: a novel*. Kharkiv: Book Club "Family Leisure Club", 2019. 560 p.

6. Kovalchuk Larysa Pedagogical interaction of teacher and students during the use of new information teaching technologies in the process of studying pedagogical disciplines. Bulletin of Lviv University. The series is pedagogical. 2005. Edition. 19. Ch. 2. S. 17-25.
7. National doctrine of education development [Electronic resource]. Access mode: <https://zakon.rada.gov.ua/laws/show/347/2002#Text>
8. A modern lesson. Interactive learning technologies: Scientific method. manual / O.I. Pometun, L.V. Pyrozhenko. K. : Publishing House A.C.K., 2004. 192 p.
9. Tarapaka N.V. Psychological and pedagogical design as an innovative technology in preschool educational institutions / N.V. Tarapaka, N.P. Haharina. Scientific notes of the Small Academy of Sciences of Ukraine. Series: Pedagogical sciences. 2012. Ed. 2. P. 96-102. Access mode: [http://nbuv.gov.ua/UJRN/snjasu\\_2012\\_2\\_14](http://nbuv.gov.ua/UJRN/snjasu_2012_2_14)
10. Shulyhina R. A. Historical, pedagogical and essential analysis of future teachers project-based learning. Innovation in education. 2018. Ed. 7 (2). P. 221-230.
11. Yurchuk O.O. Interactive book as a means of overcoming disrupted communication between "author and reader" / O.O. Yurchuk, O.V. Chaplinska. Zhytomyr Ivan Franko State University Journal. Philological Sciences. 2020. Vol. 2 (93). p. 48-57.
12. Yatsenko T.O. The reading problem in an information society: social and methodological aspects. The reading problem in the modern information society: materials of the First All-Ukrainian scientific and practical conference, September 12, 2019, Kyiv / Institute of Pedagogy of the National Academy of Pedagogical Sciences of Ukraine; for general ed. T.O. Yatsenko. Kyiv: UORC Orion, 2019. P. 5-8.

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## **ASSESSING THE IMPACT OF THE DISCIPLINES CONTENT QUALITY ON THE HIGHER EDUCATION LEARNING OUTCOMES**

### **Summary**

The basis for the provision of educational services is quality methodological support. Taking into account the assessment of the quality of educational and methodical support of disciplines, the work developed a procedure for optimizing the educational process. The proposed measures to optimize the educational process are aimed at improving the quality of educational services, which in turn, will contribute to the creation of an educational and developmental environment and comfortable conditions for the professional development of the individual higher education students.

**Key words:** content of the discipline, educational service, learning outcomes, quality

### **Introduction**

Transformational processes in the economy form new requirements for the training of professionals capable of adapting quickly in a professional environment. In the information society, knowledge becomes one of the most important characteristics of human capital. Education ensures the development of the individual, society and state through the provision of educational services. Regardless of the accreditation level and type of ownership, the competitiveness of higher education institutions operating on the educational services market is ensured, first and foremost, by the quality of services provided. The Law of Ukraine "On Education" defines the educational service as "a complex of actions of the subject of educational activity defined by the legislation, educational program and / or contract, which have a certain cost and are aimed to achieve the expected educational outcomes of the student" (1, Section 1, Article 1, p. 18). The peculiarities of services, including educational services, are as follows:

– intangibility (the service cannot be experienced in its purchase, the potential consumer of educational services evaluates the feedback and experience of those who have already received the service, information about the institution, etc., while forming expectations);

– inseparability (the provision of the service implies interaction between the seller and the consumer, who is a direct participant in the service process; the final result of the educational service is influenced by both the consumer and the seller);

– the temporary nature of the service (its inability to be stored is a consequence of the intangible nature of the service; the service cannot be stored for resale or long-term use, the time spent on an unsold service cannot be recouped and constitutes lost income, knowledge may be forgotten and become outdated);

– nonhomogeneity or inconstancy of service quality can vary widely (services are provided to each specific consumer or for each new situation, so mass production of them, unlike goods, is practically impossible, service quality is inconstant, as the process and results of service provision differ in each case, service quality can vary significantly depending on the person who provides the service, time, place, way of its provision) (T. Minakova, 2016, p. 113).

In scientific literature, the interpretation of the concept "quality of educational services" is not unambiguous and is considered in different aspects: as quality of education in general (quality of the work of the educational institution) and narrowly (achievement of learning outcomes); as quality of service, considering the organizational aspects of its provision; and directly as quality of educational service. Thus, the Law of Ukraine "On Education" defines quality of education in terms of compliance of educational outcomes with the requirements, set by the legislation (educational standards) or the agreement on educational services (1, Section 1, Article 1, p. 29). At the same time, the external quality assessment of a higher education institution is carried out on the basis of quantitative performance indicators and is implemented within the procedures of licensing, attestation and accreditation. However, it is difficult to determine how the results of external quality assessment influence the learning outcomes of higher education students. M. Matviiv in his research points out that "it is rather difficult to determine the final result of higher education institutions' activities due to the specific nature of higher education, its final results are embodied in the change of qualitative properties of an individual. They are complex in nature and reflect a close interconnection between the performance of the staff of an educational institution and the influence of other factors unrelated to the efficiency of higher education institutions' (M. Matviiv, 2005, p.).

According to many scientists, in particular, V. Zinchenko, long-term training of students, the number of factors influencing the educational process, require the organization of monitoring studies that would assess the features of the organization of the educational process in higher education and the quality of training at all stages. student in an educational institution. This necessitates the use of monitoring, which would assess the quality of the educational process and its results (V. Zinchenko, 2012, p. 6). Monitoring the quality management of the educational process of a higher education institution means an element of the quality management system of the educational process of the university, as well as a system of collecting, processing, storing and disseminating information about the educational process or its individual elements. functioning of the components of the educational process, their interaction in order to achieve the expected participants of the educational process and the planned learning outcomes (V. Zinchenko, 2012, p. 7).

In order to improve the quality of an educational service, internal evaluation is important. An internal quality assessment system should take into account the quality indicators of resource provision: material, technical, personnel, methodological and so on.

Scholars have covered various aspects of higher education quality in their research, but the issue of internal assessment of the quality of an educational service, in particular the quality of the content of a discipline, and its impact on learning outcomes remains relevant, which prompted the choice of the research topic.

### **Purpose, scope and research method**

The purpose of the study is to develop a procedure for optimizing the educational process based on an assessment of the impact of the quality of the content of the discipline on the learning outcomes of higher education students.

### **Results and discussion**

The Law of Ukraine "On Higher Education" defines learning outcomes as "knowledge, abilities, skills, ways of thinking, attitudes, values, other personal qualities, which can be identified, planned, assessed and measured and which a person is able to demonstrate after completing an educational programme or individual educational components" (4, Section 1,

Article 1, clause 19). Methodological recommendations on the development of higher education standards define program learning outcomes as "a set of knowledge, abilities, skills, other competencies acquired by a person in the process of learning in a particular educational and professional, educational and scientific programme, which can be identified, quantified and measured" (5 , p.5). Considering the above definitions, we can conclude that one of the main characteristics of learning outcomes should be the possibility to identify, assess and measure them quantitatively.

The programme learning outcomes describe what higher education students will be able to do and what new knowledge, skills and abilities they will acquire after completing their education. Let us briefly define the main learning outcomes:

- knowledge - remembering and reproducing the content of learning information, including concepts, facts, terms, etc.)

- understanding - the ability to perceive the material presented and to communicate it in a different form (in your own words, in the form of a table, graph, diagram, etc.), to understand the essence, taking into account the information previously received.

- skills, abilities - without prompting, apply knowledge in a new situation, implement theoretical knowledge in a practical situation.

Achieving learning outcomes requires adherence to certain principles for the organisation of higher education study and learning activities, the main ones are presented in Figure 1.



**Figure 1 Principles of organising the learning and cognitive activities of a higher education student.**

*Source: made by the authors using [3].*

An important means of achieving the programme learning outcomes is the methodological support for the disciplines, the components of which are:

- the work programme of the training discipline;

silabus;  
 the content of the lecture course;  
 methodological materials to support the practical/laboratory sessions;  
 methodological materials to support students' independent work (individual assignments); methodological support for current monitoring;  
 methodological support for final control and the like.

Each educator should persistently work on presenting teaching material to students in such a way that they achieve programme learning outcomes. It is clear that in the curriculum disciplines of varying complexity, for example, "Probability theory and mathematical statistics" is quite a difficult subject for most students, unlike non-mathematical subjects. Therefore, the teaching material should be presented in detail: covering theoretical issues, providing examples of problem solving, taking into account the different level of mathematical background of the students. The development of test questions and tasks requires special attention because in answering the question students analyse and interpret the information received, express their point of view and so on. In addition, the question is a means of stimulating different types of thinking at different levels of complexity.

General requirements for the content of the disciplines are presented in Fig. 2.

Particular attention, in an online learning environment, should be paid to the accessibility of the learning material, namely:

- the content of the discipline should be comprehensible to students by structuring and systematising the teaching material, in particular methodological concepts, theories and facts;
- theoretical material should be supported by a sufficient number of practical examples to enable students to comprehend it and acquire relevant skills during practical and laboratory exercises.



**Figure 2. General requirements for the content of the disciplines**

Source: made by the authors using [3].

The peculiarity of the content of the discipline in a distance learning environment is the accessibility of training and presentation of educational material.

Requirements for the semantic content of the methodological support of the discipline in a distance learning environment:

- completeness of the lecture material, compliance of lecture topics with the lecture topics of the working program of the academic discipline;
- to achieve the program learning outcomes the methodological material for lectures and independent work must contain the information necessary for higher education students;
- a detailed description of the practical or laboratory tasks with examples of how to perform them;
- a detailed description of the tasks for independent work with examples of how to perform them.

The criterion for "comprehensibility" of the description of the task is that the student performs it independently without assistance from the educator.

It is possible to improve the quality of the content of disciplines by optimizing the learning process.

Optimization of the learning process is learning management based on the full consideration of its patterns, principles, modern forms and methods, features, internal and external conditions in order to achieve the highest efficiency.

Criteria for optimizing the learning process and their characteristics are presented in fig. 3.

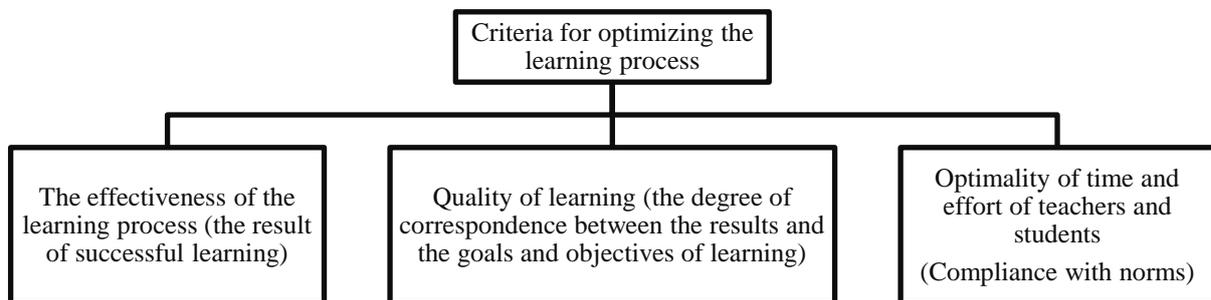
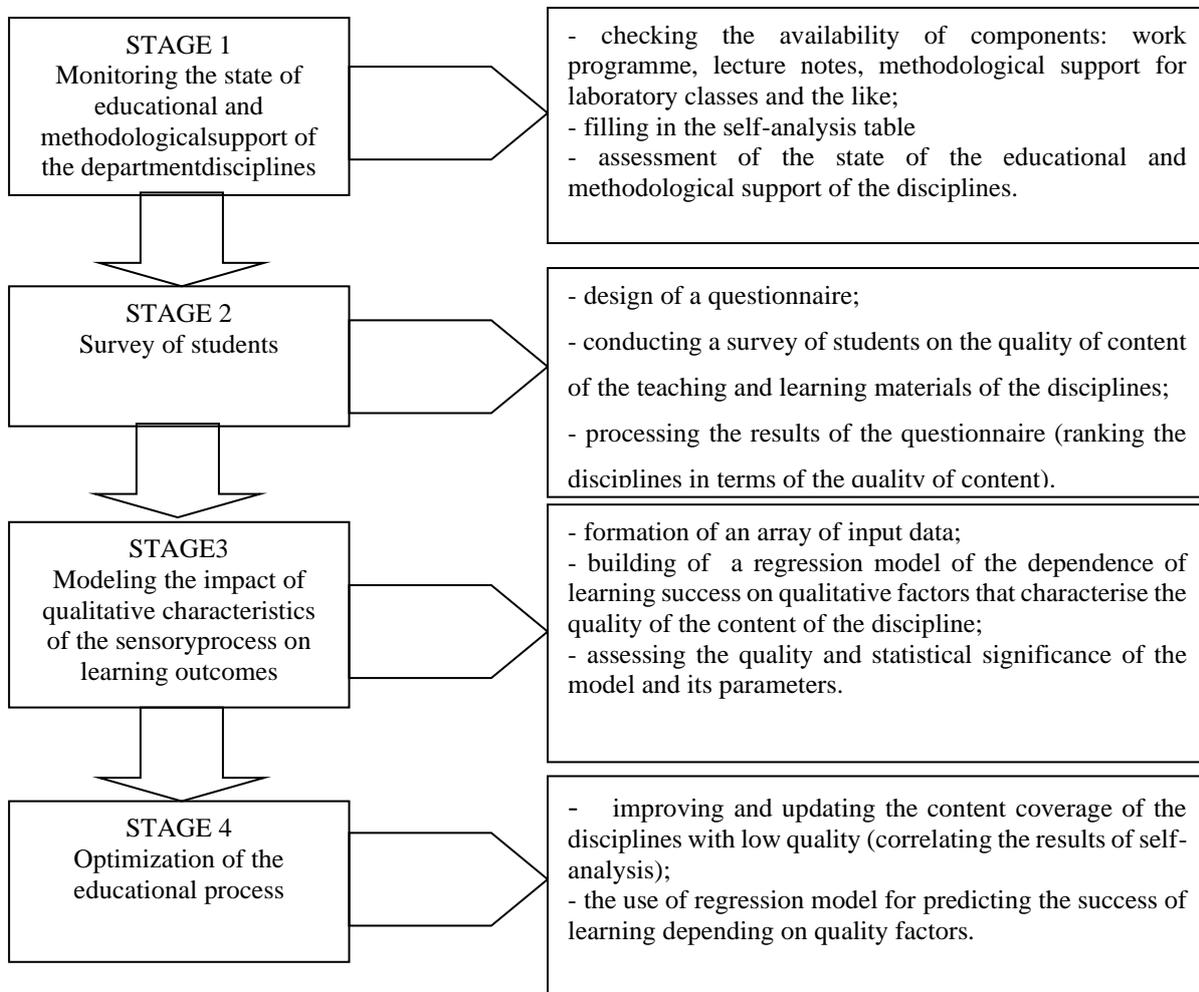


Figure 3. Criteria for optimizing the learning process and their characteristics

Source: Own survey

Optimization in decision-making tasks is the maximization or minimization of a certain useful result (target function, goal, efficiency criterion) due to the "optimal" distribution of resources. In education, such a goal may be the quality of educational services.

It is proposed to optimize the educational process by improving the quality of the content of disciplines in several stages (Fig. 4). The optimization process takes place at the level of structural units of the faculty of the educational institution (departments).



**Figure 4.** The procedure for optimizing the educational process by improving the quality of the content of disciplines

*Source: Own survey*

At the first stage of the educational process optimization by improving the quality of the content of disciplines the monitoring of the current state of teaching and methodological support of disciplines, which includes checking the availability of the following components: syllabus, working program, lecture notes, methodological support for laboratory classes, methodological support for independent work, materials for current and final control is carried out. According to the results of the inspection, each educator fills out a self-analysis table, and the responsible

for scientific and methodological work (or head of department) summarizes the results of the inspection and assess the state of teaching and methodological support of the disciplines.

At the second stage of the educational process optimization a questionnaire is designed, containing questions on the quality of content of the disciplines, for example, assess the level of course provision with theoretical material (availability of lecture notes and presentations, links to electronic resources and literature, etc.). Assessment is carried out on a five-point scale (1 - poor quality, 5 - high quality). At this stage an anonymous survey of students is carried out on the quality of the content of teaching and learning materials for each discipline separately. The anonymity of the survey will ensure the truthfulness and objectivity of the evaluations. It is advisable to conduct the survey at the end of the academic term, when students have completed the course and passed the final control ( pass-or-fail test or exam), it will also influence the adequacy of grades, as the interviewees will not be afraid to give truthful answers. After processing the results of the questionnaire, a ranking of the disciplines in terms of quality of content is carried out.

At the third stage of the educational process optimization by improving the quality of content of the disciplines, modeling the impact of qualitative characteristics of the educational process on learning outcomes is carried out. The modeling process includes: formation of an array of input data; building of regression model of dependence of learning success on qualitative factors that characterize the quality of content of the discipline; assessment of quality and statistical significance of the model and its parameters.

In the simplest case, the dependence of learning success on qualitative factors can be described using a linear model, which has the form:

$$y_i = \beta_1 \cdot x_{i1} + \beta_2 \cdot x_{i2} + \dots + \beta_k \cdot x_{ik} + u_i, \quad (1)$$

where  $y_i$  – is a dependent variable ( $i=1 \dots N$ ,  $N$  – number of items in the sample),  $x_{ik}$  – independent variables, factors ( $k=1 \dots K$ ,  $K$  – number of factors),  $u_i$  – error.

In this study, the dependent variable is learning outcomes, which are measured by student's performance in a given discipline, i.e., the number of points. Three qualitative indicators were chosen as independent variables:  $x_{i1}$  – comprehensibility and adequacy of criteria for assessing the achievement of programme learning outcomes,  $x_{i2}$  – level of methodological support of the discipline with theoretical material;  $x_{i3}$  – level of methodological support of practical (laboratory) tasks. It is worth noting that the number of factors can vary

depending on the purpose of the study.

Checking the quality, statistical significance of a regression model and the statistical significance of its parameters is a necessary part of modelling.

In the fourth stage of optimisation of the educational process by improving the quality of the content of the disciplines, improvement and updating of methodological support of the disciplines with low quality is carried out, special attention is paid to those components, which according to the results of student evaluations have comments. After the changes are made, the results of self-analysis are corrected.

At the beginning of the next academic term the teacher, after familiarising students with the programme learning outcomes, assessment criteria, methodological materials for the discipline, can predict the success of learning by applying a regression model of the influence of factors of quality of content content of the discipline. In order to build a prediction of success a questionnaire survey of students on the quality of content of the discipline is carried out.

In the fourth stage of optimisation, the aim of the student survey is to relate the results of the questionnaire with the educators' self-assessment of the content of the disciplines. It is clear that ideally these assessments should coincide. However, in case of a discrepancy, educators should take students' opinions into account and update the methodological support or its components. The educational process is dynamic due to changes in the external environment, in particular, the informatisation of society is taking place at a fast pace, new technologies are constantly emerging, etc., which in turn affects employers' requirements for graduates of educational institutions. So, the educator, must understand modern educational technologies, using them in the learning process. It is important for academic staff to upgrade their qualifications on a regular basis, i.e. to continuously learn how to work with new materials and technologies.

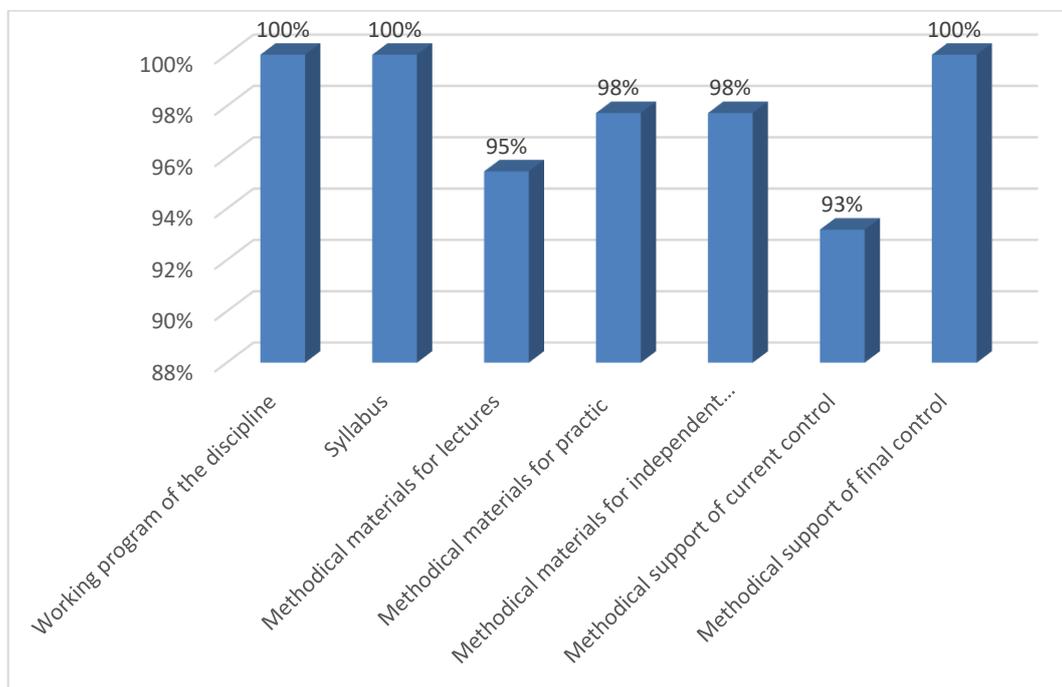
The proposed procedure to optimize the educational process by improving the quality of the content of disciplines has been tested at the Department of Economic Cybernetics, Faculty of Economics, Zaporozhye National University (ZNU).

Today the Department of Economic Cybernetics of ZNU is a modern team of like-minded people, with 3 doctors of sciences (economics and physics and mathematics), 7 PhDs (in economics, physics and mathematics), 1 senior lecturer, 3 postgraduate students. The scientific-pedagogical employees of the department are teaching 44 disciplines in the academic year 2020-2021.

It is worth noting that lecturers in the department have a conscientious attitude towards the content of the subjects they teach, so the quality is quite high, but new courses are constantly being added, besides, the requirements for methodological materials become stricter under quarantine measures.

Unlike offline learning, when the teacher works in the classroom, has the opportunity to see and be aware of the student's reaction to the presented study material, immediately answer questions, etc., in online (distance learning) conditions, qualitative meaningful content of disciplines is especially relevant. As it is the meaningful content of the discipline that is one of the means to increase students' motivation to learn. Educators must create and develop inclusive learning environments within institutions which are effective in both offline and online learning environments.

At the first stage of the educational process optimization by improving the quality of the content of the disciplines at the department checked the availability of the components of educational and methodological support and filled in the self-analysis table. The results of self-analysis by components are presented in fig. 5.



**Figure 5 Results of self-analysis of the availability of the components of the methodological support of disciplines in the department of economic cybernetics ZNU, 2020-2021 academic year**

*Source: Own survey*

As can be seen from the presented results (Fig. 5) such components as: work program,

syllabus, methodological support of the final control have all the disciplines of the department. Other components do not have all the disciplines. The degree of readiness of educational-methodical support of disciplines of the department of economic cybernetics ZNU are presented in Table 1.

**Table 1 Degree of readiness of educational and methodological support of disciplines of the department of economic cybernetics ZNU, 2020-2021 academic year (%)**

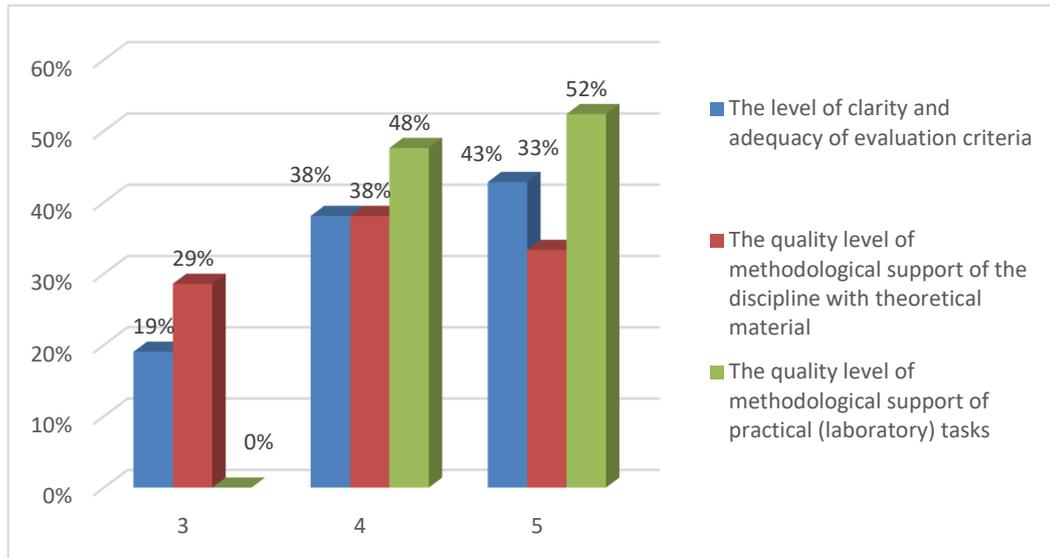
The degree of readiness of methodological support	Disciplines, %
Readiness below 50%	2
Readiness 70-79%	2
Readiness 80-89%	2
100% readiness	94

*Source: Own survey*

The discipline, which has a low level of filling with educational and methodological materials, is a new one, so the process of the course design continues. So, according to the results of self-analysis of the available content of educational-methodical support of the disciplines of the department of economic cybernetics ZNU we have concluded that its level is high enough.

At the second stage of the optimization of the educational process by improving the quality of the content of the disciplines the educators of the department conducted a survey of students on the quality of the provision of the disciplines taught in the academic year 2020-2021. Students were asked to: assess the level of clarity and adequacy of evaluation criteria; assess the quality level of methodological support of the discipline with theoretical material; assess the quality level of methodological support of practical (laboratory) tasks.

For example, the results of the survey of 21 students of the third year of the specialty "Economics" in the discipline "Forecasting of socio-economic processes" (the discipline has full methodological support) is shown in Fig. 6.



**Figure 6. Results of the survey of third-year students of the specialty "Economics" in the discipline "Forecasting of socio-economic processes"**

*Source: Own survey*

Thus, the level of comprehensibility and adequacy of assessment criteria in the discipline "Forecasting of socio-economic processes" 19% of surveyed students rated as satisfactory (grade 3), 38% as good (grade 4) and 43% - as excellent (grade 5); the quality level of methodological support of discipline with theoretical material 29% of surveyed students rated as satisfactory (grade 3), 38% as good (grade 4) and 33% - as excellent (grade 5), the quality level of methodological support of practical (laboratory) tasks 48% of surveyed students rated as good (grade 4) and 52% as excellent (grade 5). Not a single student gave negative feedback. Consequently, the quality level of the content of the discipline is high enough, however, the educator has something to work on.

Fig. 7 shows the success of the surveyed students in the discipline "Forecasting of socio-economic processes"



**Figure 7** The success of the surveyed students in the discipline "Forecasting of socio-economic processes"

*Source: Own survey*

Among the group of surveyed students, there are no students who did not pass the exam on the discipline "Forecasting of socio-economic processes"; 33% were assessed as "satisfactory", 38% "good" and 29% "excellent". At the third stage of the optimization of the educational process by improving the quality of the content of disciplines on the results of the survey formed an array of input data and built a linear regression model of the impact of qualitative characteristics of the educational process on learning outcomes. The model is as follows:

$$y_i = -9,89 + 4,31 \cdot x_{i1} + 7,45 \cdot x_{i2} + 8,98 \cdot x_{i3}. \quad (2)$$

(-2,2)
(2,37)
(2,94)
(3,31)

The critical value of Student's criterion is 2.11, since the calculated values of the criterion are greater by the module than the critical value, we can conclude that all parameters in the model (2) with 95% probability are statistically significant.

Model (2) is qualitative because the coefficient of determination is 93.4% and statistically significant because  $F_{calc} (94.6) > F_{crit} (3.2)$ .

Comparing the values of parameters with variables in the model (2) among themselves we can conclude that the quality of methodological support of the discipline with theoretical material and quality of methodological support of practical (laboratory) tasks have a significant

impact on the performance of students in the discipline "Forecasting of socio-economic processes" than comprehensibility and adequacy of the evaluation criteria.

In addition, an increase in the quality rating of the methodological support of the discipline with theoretical material by one point will lead to an increase in students' performance by 7 points, and an increase in the quality rating of the methodological support of practical (laboratory) tasks will lead to an increase in student performance by almost 9 points.

Such models are built for each subject taught at the department of economic cybernetics ZNU, the parameters of these models differ, indicating a difference in the quality of content.

So, on the fourth stage of the optimization of the educational process by improving the quality of the content of disciplines using the results of previous stages, the problematic aspects of the content of disciplines are identified, teachers are familiarized with the results and formed a plan of action to improve educational and methodological materials.

In the future, at the beginning of the next academic year, after updating the educational and methodological support, it is planned to survey students and determine the predicted performance of the disciplines.

### **Conclusions**

The proposed in the study procedure to optimize the educational process on the basis of assessing the impact of the quality of the content of the discipline on the learning outcomes in higher education allows us to take into account not only the availability of methodological support disciplines, but also its quality. Due to the establishment of "Student-Teacher" feedback, it is possible to identify problematic issues of the content and solve them in a timely manner.

It is worth noting that this approach has certain drawbacks, in particular, there is a problem of comparability of the results of the survey, because the educational service is characterized by variability - the higher education students, who has already taken a course, does not return to it again. Since the contingent of students rotate after completing the course, their characteristics also change: learning ability, motivation, state of health, and others. In addition, each teacher has a different attitude to the process of teaching, his personal vision of the subject, etc. As the study showed, the results of teachers' self-assessment of the content of disciplines do not always coincide with the results of assessing the quality of methodological support of students, consumers of educational services. The advantage of the proposed

approach is that teachers promptly receive information about the quality of methodological materials for the disciplines and have the opportunity to improve it.

The prospect of further research of the author is the development of requirements and criteria for the content of academic disciplines.

### **Bibliography**

1. The Law of Ukraine "On Education" URL :<https://zakon.rada.gov.ua/laws/show/2145-19#Text> (data extracted on 01.06.2021)
2. Minakova T. Peculiarities of educational services in modern conditions *Economy and State* № 1/2016 C. 112-117 [http://www.economy.in.ua/pdf/1\\_2016/27.pdf](http://www.economy.in.ua/pdf/1_2016/27.pdf)
3. Matviiv M.Y. Methodology and organization of marketing management in higher education: monograph / M.Y. Matviiv. - Ternopol: Economic Thought, 2005. - 560 p.
4. The Law of Ukraine "On Education" URL : <https://zakon.rada.gov.ua/laws/show/1556-18#Text> (data extracted on 30.03.2021)
5. Methodical recommendations for the development of higher education standards URL : <https://mon.gov.ua/storage/app/media/vishcha-osvita/proekty%20standartiv%20vishcha%20osvita/1648.pdf> (data extracted on 30.03.2021)

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## **PSYCHO-EMOTIONAL BURNOUT OF A TEACHER OF A HIGHER EDUCATIONAL INSTITUTION IN THE EDUCATIONAL PROCESS**

### **Summary**

Psycho-emotional burnout is perhaps one of the most common syndromes, which develops against the background of continuous exposure to stressful situations and leads to intellectual, mental and physical fatigue and exhaustion. The educational work of a teacher of a higher educational institution leads to the syndrome of "professional burnout" in most people of this profession. The aim of the work was to determine the psycho-emotional state of teachers of higher educational institutions. The study involved 59 teachers of different ages and work experience. It was found that the vast majority of teachers in institutions of higher education have a high level of both emotional exhaustion and reduced personal accomplishments and an average level of depersonalization.

**Key words:** stress, teacher, educator, burnout, emotional exhaustion.

### **Introduction**

A person in modern society is often exposed to chronic social stress, which can be caused by various stressors of social origin. A person's experience of chronic social stress can change both human consciousness and disrupt the functioning of various body systems.

Stress these days is one of the most common types of affect. It is a state of excessively strong and prolonged psychological stress that occurs in a person when their nervous system is affected by emotional overload. Stress disrupts human activity and the normal course of their behavior. Stress, especially if it is frequent and prolonged, has a negative impact not only on

the psychological state, but also on physical health. They are the main "risk factors" that course or aggravate such diseases as cardiovascular and gastrointestinal [5].

According to Hans Selye, stress is a nonspecific (i.e. the same to different influences) response of a body to any demand imposed on it, which helps it to adapt to these difficulties and cope with them. Any suddenness that disrupts the normal flow of life can cause stress. At the same time, as Hans Selye points out, it does not matter whether the situation we encounter is pleasant or unpleasant. It is the intensity of the need for change or adaptation that matters [1, 12].

Social stress is one of the most common factors in the development of various mental and nervous disorders, including adaptation disorders such as anxiety, depressive-like disorders, and so on [10].

The "burnout" syndrome is a stress reaction that occurs as a result of long-term occupational stress of medium intensity. Given the definition of the stress process by Hans Selye (i.e. stages of anxiety, resistance and exhaustion) "professional burnout" can be considered to be the third stage, which is characterized by a stable and uncontrolled level of excitation. Teachers work in a rather restless, emotionally tense environment, which requires constant attention and control over the interaction in the system "teacher-student". Under such conditions, stress is caused by many stressors, which constantly accumulate in various spheres of life. Signs of stress in the work of a teacher are diverse and numerous: high emotional stress, increased anxiety, irritability, exhaustion – and these are only a small part of the factors that lead to emotional exhaustion of the representatives of this complex and extremely important profession today. A significant stressor is the psychological and physical overload of teachers, which causes the so-called syndrome of "burnout" – exhaustion of moral and physical strength, which inevitably affects the effectiveness of professional activities, general health, mental well-being and relationships in the family and everyday life.

The problem of professional burnout is reflected in the works of such foreign scientists as K. Maslach, S. Jackson, B. Perlman, X. Freidenberger, E. Hartmann and others. In domestic science, the issues of professional burnout were raised by V. Boyko, N. Vodopianova, L. Karamushka, N. Lazarev, O. Romanovska, T. Formaniuk and others. Researchers V. Boyko, N. Vodopianova, T. Ronhynska, A. Serebriakova, O. Starchenkova and others were engaged in research and development of diagnostic methods for the "professional burnout" syndrome [2].

American researchers K. Maslach and S. Jackson described burnout as a syndrome of physical emotional exhaustion, which occurs against the background of stress. Because of this state negative self-esteem, negative attitude to work, loss of understanding and compassion for colleagues begin to develop [6]. Scientists consider the syndrome of "burnout" as a three-component system, which consists of emotional exhaustion, depersonalization and reduction of personal aspirations, which is the result of a discrepancy between a person and their work [11]. The main component of this mechanism is emotional exhaustion, which is caused by oversaturation with negative emotional experiences. The second component – depersonalization – is a deformation of the relationship, which is manifested in negativism, impersonal, cynical attitude towards the persons of provided services, and their positive attitude towards themselves. The third component – the reduction of personal accomplishments – negative assessment of their own work, themselves as specialists. The authors see the most reliable sign of burnout in the combination of emotional exhaustion with depersonalization, while the relationship between the reduction of personal accomplishments and the other two components of burnout is not necessarily considered to be a direct causal. Thus, the dynamics of the burnout, according to K. Maslach, unfolds in the following direction: idealism and excessive demands – emotional and mental exhaustion – dehumanization as a way to counteract it – a syndrome of aversion (against themselves – against others – against everything) and, as a consequence – collapse: dismissal, disease [4].

Emotional burnout syndrome is a disease that, unfortunately, is not always noticed. Given that the main providers of the educational goal are teachers of higher educational institutions, it is necessary to pay great attention to their psychological health. The stressful nature of the professional activity of teachers has a negative impact on their mental states, which causes a number of negative socio-psychological consequences in the professional sphere. These include: decreased job satisfaction, deteriorating socio-psychological climate in the team, burnout [13].

Teachers belong to a professional group that is particularly open to maladaptive tendencies. This is facilitated by high levels of stress, the complexity of intellectual work, increased load on the visual system, psycho-emotional and muscular tension. M. Berebin believes that socially maladaptive factors for this profession are low social security and prestige of the profession, suppression of active social needs, multifunctional socially responsible activities in conditions of information overload, the need for professional interpersonal interaction in situations with a high degree of conflict. Among the many features and difficulties

of educational work, its high psychological tension is especially distinguished. Moreover, the need for emotion and involvement is recognized as one of the professionally important qualities of a teacher [9].

The profession of the teacher is one of those where the syndrome of "professional burnout" is the most common, because the professional activity of the teacher is recognized as one of the most emotionally stressful. This is due to the large number of unpredictable and uncontrolled communicative situations, unregulated work, high degree of personal responsibility of a teacher, the inability to obtain unambiguous evidence of the effectiveness of their activities, and so on. Emotional burnout of teachers has become a problematic phenomenon of modern higher educational institutions. Therefore, it is very important to study the peculiarities of the syndrome of "professional burnout", its development and course in educational work [7, 8]. The study of emotional burnout of teachers is a very relevant and acute problem of our time. This is determined by the need of science and practice to know the individual factors and features of the traumatic effect of emotional burnout on the mental health of the teacher [3].

### **Purpose, scope and research method**

The purpose of the study: theoretical substantiation of the concept of "burnout", experimental study of the signs of this syndrome in teachers of higher educational institutions and arrangement of recommendations for the prevention of "burnout".

Subject of the research: psychological features of "professional burnout" of teachers.

Research methods: theoretical (method of scientific analysis, synthesis, abstraction, induction, classification and systematization, which were used to generalize theoretical approaches to determine the nature and characteristics of the impact of "burnout" syndrome on the personality of a teacher) and empirical methods (questionnaire, pedagogical experiment, quantitative and qualitative analysis of the results). In the course of the research the following practical method was used: diagnostics of professional burnout by K. Maslach and S. Jackson.

### **Results and discussion**



I feel emotionally drained	1	4	4	19	14	13	4
At the end of the day, I feel like a "squeezed lemon"	0	3	5	21	17	10	3
I feel tired when I wake up in the morning and have to go to work	3	9	9	21	8	6	3
I feel energetic and emotionally uplifted	0	6	2	19	22	8	2
I feel depressed and apathetic	2	14	12	13	11	4	3
I have more and more frustrations in life	4	15	6	21	7	3	3
I feel indifferent and lose interest in many things that have made me happy before	6	15	9	17	6	4	2
I want to be alone and relax from everything and everyone	1	14	6	15	11	7	5
I feel on the edge/am pushing my limits	3	12	12	18	7	3	4

*Source: Own survey on the basis of conducted research.*

Having analysed the results of the "Depersonalization" block of the questionnaires it was found that the average statistics of this condition of all teachers are at the average level (Table 2). Depersonalization is manifested in the distortion of relationships with other people. There can be increase in dependence on others, or increase in negativity, cynicism of attitudes and feelings. Depersonalization involves a cynical, indifferent, inhumane attitude towards the people they work with. Contacts with colleagues become formal, impersonal; the negative attitudes may initially be latent and manifest themselves in restrained irritation, which eventually breaks out and leads to conflicts.

**Table 2. The results of the "Depersonalization" block of the questionnaire by the "Professional burnout" method in the system "man-man" of teachers of Zhytomyr Ivan Franko State University (Ukraine), (n = 59)**

Statement	Number of teachers who chose the answer options						
	never	very rarely	rarely	sometimes	often	very often	always
I communicate with my students quite formally, without unnecessary emotions, and try to minimize communication with them	15	16	14	7	2	3	2
Lately, I have become more callous (insensitive) towards those I work with	13	19	12	8	4	1	2
As a rule, people around me demand a lot from me and manipulate me. They are more tiresome than happy	5	19	9	13	7	3	3

Sometimes I really don't care what happens to some of my students and colleagues	16	19	7	11	2	1	3
Sometimes students and colleagues shift the burden of their problems and responsibilities onto me	5	9	9	18	12	4	2

*Source: Own survey on the basis of conducted research.*

The results of the "Reduction of personal accomplishments" block show that this condition is on average at a high level for all teachers (Table 3). Reduction of personal accomplishments can be manifested either in the tendency to negatively evaluate themselves, their professional accomplishments and successes, negativism about accomplishments and opportunities, or limiting their capabilities, responsibilities towards others.

**Table 3. The results of the "Reduction of personal accomplishments" block of the questionnaire by the "Professional burnout" method in the system "man-man" of teachers of Zhytomyr Ivan Franko State University (Ukraine), (n = 59)**

Statement	Number of teachers who chose the answer options						
	never	very rarely	rarely	sometimes	often	very often	always
I understand well what my students and colleagues feel, and I use it in the interests of the cause	7	6	4	15	20	3	4
I know how to find the right solution in conflict situations	0	0	0	10	27	18	4
I can positively influence on the productivity of my students and colleagues	0	0	2	12	27	15	3
I have many plans for the future and I believe in their fulfilment	0	1	2	13	16	11	16
I can easily create an atmosphere of friendliness and cooperation when communicating with my students and colleagues	0	1	0	10	23	15	10
I communicate easily with people regardless of their status and character	1	0	2	6	24	17	9
I have time to do a lot of what was planned	0	0	7	17	20	9	6
I can still achieve a lot in my life	0	4	2	8	19	12	14

*Source: Own survey on the basis of conducted research.*

The results of the survey showed that if the respondent has a high level of emotional exhaustion, then both depersonalization and reduction of personal accomplishments are high. If the respondent has an average level of emotional exhaustion, then depersonalization and reduction of personal accomplishments may be of a medium or high level. If the respondent has

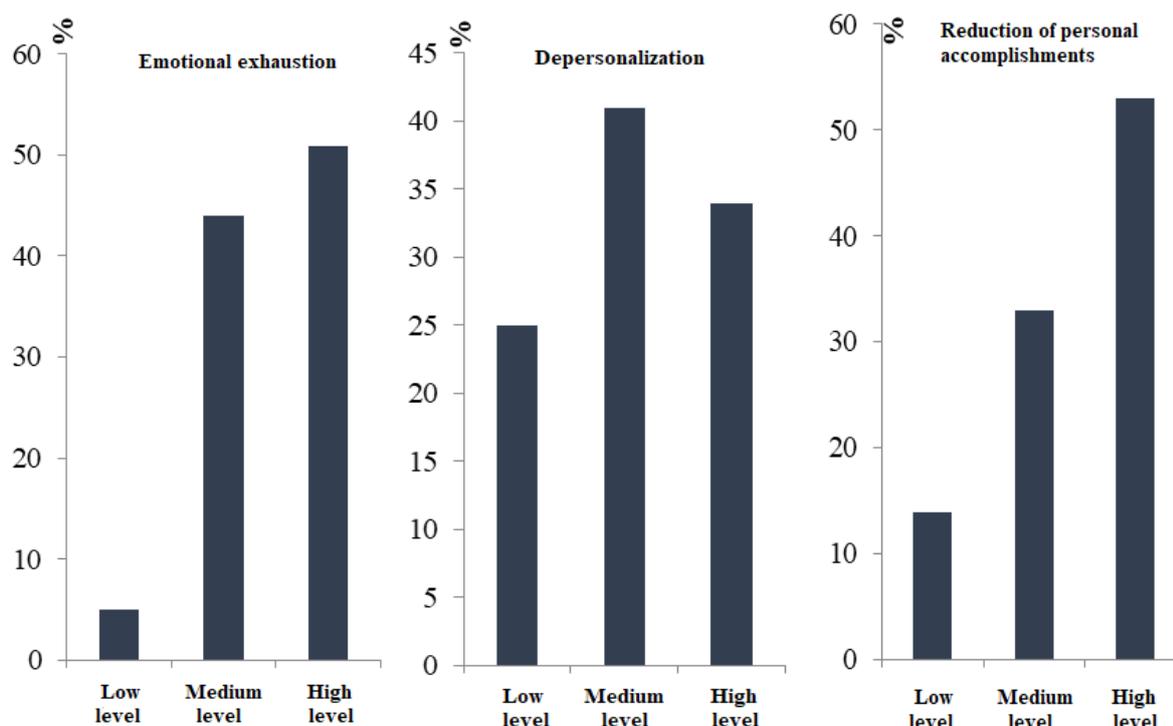
a low level of emotional exhaustion, then both depersonalization and reduction of personal accomplishments are low or medium (Table 4).

**Table 4.** The results of the questionnaire by the "Professional burnout" method in the system "man-man" of teachers of Zhytomyr Ivan Franko State University (Ukraine), (n = 59)

Subscale	Low level	Medium level	High level
	Number of people		
Emotional exhaustion	3	26	30
Depersonalization	15	24	20
Reduction of personal accomplishments	8	20	31

*Source: Own survey on the basis of conducted research.*

It was found that the most pronounced sign for the respondents is "emotional exhaustion". The following results were found in teachers: 51 % have a high level, 44 % – medium and 5 % – low (Figure 2). Emotional exhaustion is a major component of burnout and manifests itself in a decrease in emotional background, indifference or emotional overload. The teacher feels the devastation and fatigue caused by his own work.



**Figure 2.** Components of "emotional burnout" of teachers of Zhytomyr Ivan Franko State University (Ukraine), (n = 59)

*Source: Own survey on the basis of conducted research*

According to the results of the survey, such a feature as "reduction of personal accomplishments" in the studied teachers is also at a high level, in particular a low level – in 14 % of teachers, medium – in 33 % and high – in 53 % (Figure 2). People who have this predominant trait may experience a decrease in the sense of competence in their work, dissatisfaction with themselves, a decrease in the value of their own activities, feelings of guilt for their own negative attitudes or feelings, negative perceptions of themselves in professional activities, decreased professional and personal self-esteem, feeling of own inability, indifference to work. It is possible that the level of motivation to work will reduce, which is manifested in a decrease in enthusiasm and initiative.

Less pronounced feature in the respondents is "depersonalization", in particular, a low level was found in 25 % of respondents, medium – in 41 % and high – in 34 % (Figure 2). Depersonalization is manifested in the tendency to negatively evaluate their professional accomplishments, underestimation of themselves and their own successes, negative attitude to work and possible prospects, formalities of contacts with colleagues at work and so on.

Regarding the pedagogical experience, the most "dangerous" in the teaching activities is the period of 11-15 years, when the symptoms of burnout are observed most often.

### **Summary**

In this study, emotional burnout is seen as a syndrome of constant fatigue, emotional exhaustion, which only intensifies over time. It has been proven that emotional burnout is easily confused with depression, because a person in both states is equally passive and powerless. Emotional burnout and depression are very similar and are often seen as related problems. But numerous studies show that there is a difference between them. The survey revealed such features of emotional burnout as emotional exhaustion, which is manifested by emotional devastation and fatigue, not excluded are manifestations of depersonalization, characterized by depersonalization of relationships with people. The results of the survey show that a significant number of teachers are characterized by inadequate emotional response, reduced interaction with colleagues, termination of professional responsibilities, the desire to be alone, expanding the sphere of saving emotions. A pronounced feature for the respondents is the reduction of personal accomplishments. Their attitude is manifested in the tendency to negatively assess themselves, their professional achievements and successes, negativism about professional

dignity and opportunities, or in the leveling of personal dignity, limiting their capabilities, responsibilities to others. Thus, in the professional activity of teachers there is a high level of emotional burnout.

Emotional burnout syndrome occurs against the background of physical and mental exhaustion of a teacher. Therefore, preventive measures aimed at improving health will help prevent this disease. One of the most effective means of preventing the development of emotional burnout is self-regulation, because without the active and conscious involvement of the individual it is impossible to successfully overcome this problem. Teachers with a high level of "emotional burnout" need psychotherapeutic measures to overcome and prevent emotional burnout from a psychologist, because it is necessary to improve their professional activities.

Prospects for further research are related to the development of guidelines for preventive and corrective work aimed at reducing psycho-emotional stress and increasing the motivation level of professional activity of teachers of higher educational institutions, taking into account their temperament and age.

### **Bibliography**

1. Baraboj V.A., Reznikov O.G. Physiology, biochemistry and psychology of stress: monograph. – Kiev: Interservice. – 2013. – 314 P. [Baraboj V.A., Reznikov O.G. Fiziologiya, bioximiya ta psy`xologiya stresu: monografiya. – Ky`yiv: Interservis. – 2013. – 314 s.]
2. Butuzova L.P., Nichiporchuk T.O. Peculiarities of the social teaching staff. – Applied aspects of psychic and special development in pre-adolescent young sciences. – Zhytomyr: Vidavnytstvo Zhytomyr State University of Ivana Frank, 2017. – PP. 87-92. [Butuzova L.P., Ny`chy`porchuk T.O. Osobly`vosti emocijnogo vy`gorannya social`ny`x pedagogiv. – Pry`kladni aspekty` psy`xichnogo ta osoby`stisnogo rozvy`tku u doslidzhennyax molody`x naukoviciv. – Zhy`tomy`r: Vy`davny`cztvovo Zhy`tomy`rs`kogo derzhavnogo universy`tetu imeni Ivana Franka, 2017.– S. 87-92.]
3. Kiselitsa O.M., Bogdanyuk A.M., Gulina L.V., Svekla R.M. Prediction and prevention of burnout and chronic fatigue of physical education teachers. – A young scientist. – 2018. – № 3.3 (55.3). – PP. 89–92. [Ky`sely`cya O.M., Bogdanyuk A.M., Gulina L.V., Svekla R.M. Prognozuvannya ta zapobigannya sy`ndromu profesijnogo vy`gorannya i

- xronichnoyi vtomy` uchy`teliv fizy`chnoyi kul`tury`. – Molody`j vcheny`j. – 2018. – № 3.3 (55.3). – S. 89–92.]
4. Koltunovich T.A. Psychological conditions of correction of professional burnout at educators of children's educational institutions: the dissertation on competition of a scientific degree of the candidate of psychological sciences: specialty 19.00.07 "Pedagogical and age psychology" – Ivano-Frankivsk, 2016. – 352 P. [Koltunovy`ch T.A. Psy`xologichni umovy` korekciyi profesijnogo vy`gorannya u vy`xovateliv dy`tyachy`x navchal`ny`x zakladiv: dy`sertaciya na zdobuttya naukovogo stupenya kandy`data psy`xologichny`x nauk: special`nist` 19.00.07 "Pedagogichna ta vikova psy`xologiya" – Ivano-Frankivs`k, 2016. – 352 s.]
  5. Liashevych A.M. Infusion of social stress and hypercholesterolemia into the secretory function of the liver in case of stasis of the disease: dissertation on the health of the scientific stage of the candidate of biological sciences: specialty 03.00.13 " Human and animal physiology". – Kiev, 2019 . – 154 P. [Lyashevych A.M. Vply`v social`nogo stresu i giperxolestery`nemiya na zhovchnosekretornu funkciyu pechinky` pry` zastosuvanni korvity`nu: dy`sertaciya na zdobuttya naukovogo stupenya kandy`data biologichny`x nauk: special`nist` 03.00.13 "Fiziologiya lyudy`ny` i tvary`n". – Ky`yiv, 2019. – 154 s.]
  6. Maslach C., Jackson S.E. The measurement of experienced burnout. – Journal of Occupational Behaviour. – 1981. – N 2. – PP. 99-113.
  7. Miroschnichenko O.A. Prevention of the "syndrome" of burnout in workers in extreme conditions: a basic guide. – Zhytomyr: Vidavnytstvo Zhytomyr State University of Ivana Frank, 2013. – 155 P. [Miroschny`chenko O.A. Profilakty`ka «sy`ndromu» profesijnogo vy`gorannya u pracyuyuchy`x v ekstremal`ny`x umovax: nachal`no-metody`chny`j posibny`k. – Zhy`tomyr: Vy`davny`cztvovo Zhy`tomyr`s`kogo derzhavnogo universy`tetu imeni Ivana Franka, – 2013. – 155 s.]
  8. Parfyonova T., Myronyuk O. Prevention of emotional burnout. – Psychologist. – 2013. – № 3. – PP. 37-39. [Parf`onova T., My`ronyuk O. Profilakty`ka emocijnogo vy`gorannya. – Psy`xolog. – 2013. – № 3. – S. 37-39.]
  9. Sirokha L.V. Psychological features of emotional burnout in primary school teachers. Scientific Bulletin of Kherson State University. – Psychological Sciences Series. – Issue 3. – Volume 1. – 2018. – PP. 201-205. [Siroxa L.V. Psy`xologichni osobly`vosti emocijnogo vy`gorannya u vchy`teliv pochatkovoyi shkoly`. – Naukovy`j visny`k Xersons`kogo

- derzhavnogo universy`tetu. Seriya Psy`xologichni nauky`. – Vy`pusk 3. – Tom 1. – 2018. – s. 201-205.]
10. Troshin V.D. Stress i stressful problems: diagnostics, treatment, prevention: scientific vision – Moscow: MIA. – 2007 . – 784 P. [Troshy`n V.D. Stres i stresogenni rozlady`: diagnosty`ka, likuvannya, profilakty`ka: naukove vy`dannya – Moskva: MIA. – 2007. – 784 s.]
  11. Vodopyanova N.E., Starchenkova E.S. Burnout syndrome. Diagnostics and prevention: a practical guide. – 3rd ed. – Moscow: Yurayt Publishing House, 2017. – 343 PP. [Vodop'yanova N.E., Starchenkova E.S. Sy`ndrom vy`goryannya. Diagnosty`ka i profilakty`ka: prakty`chny`j posibny`k. – 3-e vy`d. – Moskva: Vy`davny`cztvo Yurajt, 2017. – 343 s.]
  12. Zhigulina V.V. Biochemical response of the body to stress (literature review). – Upper Volga. honey. magazine. – 2014. – Vol. 12. – Issue 4. – PP. 25-30. [Zhy`guly`na V.V. Bioximichna vidpovid` organizmu na stres (oglyad literatury`). – Verxnevolzh`ya. med. zhurn. – 2014. – T. 12. – Vy`p. 4. – S. 25-30.]
  13. Zlivkov V.L., Lukomskaya S.O., Fedan O.V. Psychodiagnostics of personality in crisis life situations. – Pedagogical thought. – Kyiv, 2016. – 219 P. [Zly`vkvov V.L., Lukoms`ka S.O., Fedan O.V. Psy`xodiagnosty`ka osoby`stosti u kry`zovy`x zhy`ttyevy`x sy`tuaciyax. – Pedagogichna dumka. – Ky`yiv, 2016. – 219 s.]

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## **FORMATION OF RESEARCH COMPETENCE OF STUDENTS MEDICAL COLLEGE IN THE FORMAT OF DISTANCE LEARNING**

### **Summary**

The article considers the priority of formation of research competence of medical college students, with emphasis on the problems of distance learning. The author summarizes and supplements such key concepts as "competence", "research competence of medical college students", highlights the structural components of these categories.

**Key words:** competence, competency, research, research competence, formation of research competence, medical college students, distance learning

### **Introduction**

Accelerated pace of life, active reform of all industries, the latest technologies, which are changing at a breakneck pace, make increased demands on young professionals. Adaptation to modernity requires, in addition to professional competencies, mastering the skills of working with information sources of various formats (Internet-resource, printed publications, archival materials), critical thinking, correct expression and defense of their positions, based on scientific facts; generalisation and systematisation; reflection. Such changes have not escaped medical education. In particular, mid-level specialists. The development of a person who not only has the baggage of knowledge and a set of certain skills, but also shows the ability to professional creativity through the vision of non-standard ways of solving problem situations, is dictated by working with the population in pandemic conditions.

The importance of solving the outlined tasks is emphasized in the Law of Ukraine "On Higher Education" (№ 1556-VII of 23.04.2021); the Law of Ukraine "On Education" (№2145-VIII of 23.04.2021); the Regulation on distance learning approved by the Ministry of Education

and Science of Ukraine 25.04.2013 №466 and edited 16.10.2020 20z0701-13; Concepts of e-health development (from December 28, 2020 №1671 -r).

In this situation, we consider the development of research competence of mid-level medical staff a priority. However, quarantine restrictions have made significant changes in the educational process of educational institutions. And, if a few years ago only the full-time traditional form of education was acceptable for medicine, the last two years have been forced to switch to distance or blended. Therefore, teachers face the problem of finding didactic methods, forms, tools that could ensure quality organisation of educational and research work of students, and hence the formation of research competence.

#### Purpose

Define the concept of "research competence of medical college students"; find out its components.

#### Subject

The specifics of the formation of research competence of medical students in a remote format.

### **Research methods**

During the work we resorted to the following methods: 1) theoretical – elaboration of relevant literature sources to identify, critically analyse the state of the selected research problem, clarify the concept of "research competence" given the specifics of nursing professional activity; 2) synthesis, generalisation, systematisation of the obtained data contributed to the specification and separation of structural components of the research competence of medical students; 3) experimental – the creation and implementation of appropriate virtual learning spaces, testing their effectiveness.

### **Research results**

Scientific research has shown that the problem of forming research competence has attracted the attention of many scientists. Thus, R. Bogdanov, M. Garmashov, M. Zolocheskaya, O. Merzlykin studied the desired category as a system property of a person capable of carrying out educational and research activities. Y. Kryvenko, L. Repeta, K. Stepaniuk, Zh. Shabanova – as an independent cognitive activity, the result of which is the acquisition of subjectively new research knowledge, skills and abilities. Understanding as a

component of professional competence V. Adolf, S. Belkina, A. Derkach, A. Markova, T. Movchan, V. Polyakov, T. Semakova, O. Silishenko, T. Smolina, S. Chistyakov, A. Khutorsky understand it as a component of professional competence. It is worth noting a number of developments in which research competence is presented as an integrated personality trait (A. Bagachuk, N. Borozenets, M. Golovan, A. Gorshkova, L. Koval, O. Kozyreva, S. Osipova, N. Rusina, S. Sapozhnikov, V. Symonenko, O. Ushakov, O. Feskova, M. Shashkina).

Peculiarities of formation of research competence in medical students are revealed in the works of S. Bukhalska, L. Voloshyna, O. Makarenko, O. Melnychuk, A. Moseychuk, N. Solodyuk, O. Smolyanova, I. Sopivnyk, M. Filonenko, O. Khanyukova, O. Khmil, S. Tsvirenko.

However, priority in these studies is given to future physicians. Mid-level medical workers are mostly positioned by scientists and ordinary citizens of Ukraine as mechanical executors of medical prescriptions, which does not provide for any independence. The bias and refutation of this concept is drawn attention to in the works of N. Banadyga, I. Gubenko, O. Myalyuk, I. Khmelyar, M. Shegedyn. Because it is the nurses and paramedics who work directly with the public during health education, and with patients of treatment and prevention facilities in the process of diagnosis and implementation of therapeutic measures.

Thus, the objective need for highly qualified, mobile, competitive mid-level professionals capable of effective implementation of nursing and treatment at the appropriate professional level necessitated the separation of appropriate didactic conditions, methods, forms and means of forming research competence of medical college students.

So, clarifying the problem of forming separate definitions requires a preliminary analysis of the interpretation of components in a logical combination of such concepts: "competence", "research", "research competence", "distance learning" given the specifics of medical education.

Scientific research has shown that in the reference and pedagogical literature there is a certain discrepancy in the interpretation of the leading terms "competence", "competency". Thus, the concept of "competence" is interpreted as: 1) the scope of authority of any organisation or person; range of issues on which this person has certain knowledge, experience, authority [2, p. 282]; 2) good knowledge of something; the scope of authority of any organisation, institution, person [9, p. 874]; 3) the ability to solve problems, which is provided not only by the possession of ready-made information, but also by the intensive participation

of reason, experience, creativity [1, p. 9]; 4) some internal potential, hidden psychological neoplasms (knowledge, ideas, programs of action, value systems and relationships), which are then manifested in human competencies as relevant, activity manifestations [15, p. 22].

Instead, the multifaceted nature of the term "competence" is understood by scientists as: 1) awareness, authority [2, p. 282]; 2) from the standpoint of the concept of "competent" – one who has sufficient knowledge in any field; familiar with something; clever; qualified; has certain powers; full-fledged [9, p. 874]; 3) the ability to act, but only in organic unity with personal values, i.e. in terms of deep personal interest in this activity [1, p. 9]; 4) a system of theoretical and methodological regulations, scientific knowledge, organisational and methodological, technological skills, objectively necessary for the individual to perform job responsibilities, as well as the relevant moral and psychological qualities [6, p. 63].

Note that some scholars view competencies as components of leading competencies.

More specifically, given the educational process, these concepts are distinguished in the scientific studies of M. Golovan, where competence is interpreted as an integrative formation of personality that combines knowledge, skills, abilities, experience and personal qualities that determine the desire, willingness and ability to develop. Identify problems and challenges that arise in real life situations, while realising the importance of the subject and the result of activities. Instead, competence acts as an objective category, a socially recognised level of knowledge, skills, attitudes, etc. In a particular area of human activity as an abstract carrier [3, p. 29].

Thus, we will consider competence as a personal quality that is formed and developed through the acquisition of a set of certain competencies.

It is clear that the category of "competence" is much broader than such concepts as "knowledge" and "skill", as it implies the presence of personal significance, intra-motivational and volitional regulation of cognitive activity.

Regarding the concept of "research", most scientists agree on the mandatory existence of a cognitive process that results in the formation of new general or personal knowledge, skills and abilities.

Thus, in the columns of encyclopedias and specialised dictionaries, "research" is postulated as: the process of formation of new knowledge, a type of cognitive activity characterised by objectivity, reproducibility, evidence, creativity [13, p. 16]; type of systematic cognitive activity aimed at acquiring new knowledge, assimilation of information and study of

certain problems on the basis of special standardised methods [12, p. 66]; process and result of scientific activity, providing socially significant new knowledge [14, p. 301]. Therefore, the main criteria for the study of student youth will be the process of self-mastery of subjectively new knowledge and the formation of exploratory empirical skills.

Further work with primary sources allowed to analyse the interpretation and content of the integrated concept of "research competence".

Thus, S. Sapozhnikov proposes to consider this category as an integrated quality (characteristic) of personality, which determines its ability to solve problems and solve various problems that arise in real life situations, in different areas of activity, based on the use of knowledge and skills from educational and life experience in accordance with the established system of general cultural and professional values; and identifies the following structural components: design; informative; analytical-synthetic; practical [11, p. 129].

Joint scientific research of M. Golovany and V. Yatsenko allowed to define "research competence" as a holistic integrative quality of personality, which combines knowledge, skills, experience of the researcher, values and personal qualities and is manifested in the willingness and ability to carry out research activities. in order to obtain new knowledge through the application of methods of scientific knowledge, creative approach to the whole laying, planning, decision-making, analysis and evaluation of research results. The following components are determined as appropriate: motivational and value; cognitive; activity-practical; reflexive [4, p. 60–61].

T. Movchan clarifies this phenomenon as a set of knowledge, skills, abilities that have become a property of the individual and ensure the successful and effective implementation of its educational, scientific and research activities in the process of becoming a specialist and in further professional activities. The logic of the research allows the author to single out other professionally important competencies in such a process, namely: professional scientific (cognitive, prognostic, organisational components); communicative scientific (communicative, perceptual, interactive components); educational (self-organisational, reflexive, correctional-regulatory components) competence [8, p. 112, 115].

In the logic of the concept of our study, special attention is paid to scientific research in the field of medical education V. Volokitina, M. Demyanchuk, E. Kapliy, A. Moseychuk, A. Oliynikova, V. Ryzhkovsky, Z. Sharlovich, O. Chepurna and others.

Despite the significant number of scientific papers on the problems of research competence, there is no single didactic and organisational approach to the essence of this

process in a medical college. Nevertheless, the role and importance of the formation of research competence of mid-level medical professionals is beyond doubt.

We are interested in the opinion of A. Moseychuk in scientific research on the formation of research competence in future paramedics. The author defines the desired concept as an integrative personal neoplasm, which consists of basic knowledge of methods of scientific knowledge, research methods, values and conscious ability to transfer initial research experience into professional activities to provide quality care to patients. The scientist substantiates and determines the following structural components: motivational, prognostic, procedural-communicative and effective [7, p. 90-91].

Relevant to our research are the selected I Khmelyar components of research competence of future laboratory assistants, which are presented in the form of general scientific skills, namely: information - the ability to perform bibliographic search, work with books, reference books and other primary sources or technical sources of information; creative - the ability to generate ideas, put forward a research hypothesis; ability to analyse, synthesize and summarise information; systematise and classify, identify contradictions; perform retrospective analysis [5, p. 154].

It should be noted that mid-level medical staff communicates more often with patients of treatment and prevention facilities. This phenomenon is due to the need to collect primary anamnestic data; explanation of the essence and importance of diagnostic and therapeutic procedures; conducting training on the elements of self-care during the rehabilitation period; involvement of patients and their relatives in preventive work.

The analysis of the defined professionally significant abilities and skills allowed to allocate certain leading positions: 1) priority of elements of research at definition of clinical and nursing diagnoses; 2) conscious quality implementation of the nursing process during the implementation of prescriptions and care procedures; 3) motivation to analyze their own activities, its possible correction on the basis of clinical observations and readiness for further professional development.

Therefore, taking into account the specifics of the educational process of medical schools, "research competence of medical college students" is understood as an individualised quality of personality, manifested in the desire, willingness and ability to implement research activities for productive, creative implementation of educational, nursing or medical development in Perm and improvement.

Also, the comparative analysis of the literary fund allowed to determine the following structural components:

- motivational – a special attitude of the student to cognitive activity, his motivation for scientific research during the mastery of fundamental and clinical disciplines; awareness of the social significance of the level of quality of knowledge, skills and abilities; desire for independent further development and improvement;

- cognitive – the implementation of the cognitive process for the acquisition of professional knowledge, skills and abilities;

- activity-manipulation – effective application of general (analytical, comparative, communication, prognostic, generalising, systematising) and special (manipulation, instrumental, monitoring nursing techniques with the use of modern equipment) competencies to identify and solve patient problems;

- reflexive – characterised by the ability to independently control, analyse, evaluate the effectiveness of their own professional actions; possible timely correction.

As noted earlier, the formation of research competence occurs through research activities. Mostly this process is implemented in subject groups while working on the project. However, such an organisation of exploratory research does not involve all students. Thus, a number of future professionals master the profession by traditional reproductive methods. In addition, high-quality research work of students is significantly complicated by the transition to distance learning, which until recently was unacceptable in medical education in Ukraine.

The term "distance learning" is understood as an individualised process of acquiring knowledge, skills, abilities and ways of human cognitive activity, which occurs mainly through the indirect interaction of distant participants in the learning process in a specialised environment that operates on the basis of modern psychological, pedagogical and informational communication technologies [10].

Therefore, the educational process should be organised in such a way as to provide students with the opportunity to search for the necessary information, its analysis, generalisation and systematisation in tables, diagrams, presentation of material in graphical form, formulation of questions to obtain quality advice; creating a presentation and defending completed tasks online without visual contact, which greatly complicates the effectiveness of communication.

In order to solve certain problems, we consider it optimal to conduct training in the form of an on-line conference, using the G suite for education platform. The organisation of

such employment demands careful preliminary preparation: creation of a class in the appendix; filling with clinical and situational tasks of different levels of complexity and types of activity; if necessary, attaching presentations, Google forms, links to scientific videos on the YouTube channel, which provides the possibility of simultaneous viewing for all participants; to inform students in advance what materials need to be prepared for the lesson, what primary sources to get acquainted with, what information to repeat, etc.

We consider it necessary to divide the theoretical classes into semantic frames. After each one – take short breaks and address the audience with questions or suggestions for discussion, which significantly stimulates learning activity. Working in this mode, students get the opportunity to discuss the problems of certain tasks, formulate questions to get more detailed information about the manifestations a certain pathological process or symptom complex of diseases; conducting elements of differential diagnosis, identification of patient problems, planning and implementation of independent nursing interventions; conscious fulfillment of prescriptions; analysis and correction of own actions; decide on further procedures. Thus, future medical professionals form analytical and clinical thinking, which significantly improves the quality of learning material, increases the effectiveness of the use of acquired knowledge, skills and abilities in future professional activities.

The teacher, in this case, acts as a consultant, periodically directing the reasoning of students in the right direction.

You should pay attention to the Internet platforms Zoom or Meet, which allow you to keep in touch with a whole group of students, or personally with each participant in the learning process in a conference mode, but only for 40 minutes (provided you work with the free version). However, this time is enough to conduct a quality consultation and provide answers to possible questions.

The objectivity of the assessment of the mastered theoretical material is ensured by the use of the program "Colloquium", which is available remotely. The application automatically changes the order of submission of test questions and answer options to them, which makes it impossible to automatically memorize the text, and requires conscious mastery of information.

As for the formation of manipulative competencies, only simple manipulation techniques that do not require special equipment can be demonstrated and reproduced by video communication. Completion of complex procedures requires appropriate equipment, multiple self-repetition under the control and correction of the teacher. Therefore, during distance

learning, special attention is paid to the study of protocols of dependent nursing interventions, emergency medical care, resuscitation and monitoring of the patient.

### **Conclusions**

Thus, the formation of the leading components of research competence in medical college students requires a traditional form of organization of the educational process with the mandatory use of modern interactive teaching methods, which involves direct communication with patients, practical skills in treatment and prevention facilities, analysis of consequences and correction. However, during distance learning, using modern information and computer technologies, it is possible to master the theoretical material, work with literature sources, systematise and generalise the information, study the algorithms of various manipulations, watch a bank of educational films. In addition, the material submitted by the teacher on the Internet-platforms can be used by students the required number of times and stored for a long time intact.

The received experience of the organization of educational process in a remote format promoted operative creation of new model of formation of research competences; involvement of students from remote areas in the active acquisition of professionally important knowledge, skills and abilities; expanding international educational horizons through the study and exchange of experiences with leading educational institutions in Europe.

### **Bibliography:**

1. Bondar S. Personality competence is an integrated component of students learning achievements / S. Bondar // *Biology and chemistry in school*. – 2003. – №2. – P. 8–9.
2. Dictionary of foreign words / compiled by: S. M Morozov, L M Shkaraputa. – K. : Scientific thoughts, 2000. – 680 c.
3. Golovan M. S Competence and competency: experience of theory, theory of experience / M. S Golovan // *Higher education of Ukraine*. – 2008. – №3. – P. 23–30.
4. Golovan M. S. The essence and content of the concept of "research competence" / M. S. Golovan, V. V Yatsenko // *Theory and methods of teaching fundamental disciplines in high school: a collection of scientific papers. Issue VII*. – Kryvyi Rih: Publishing Department of NMetAU, 2012. – P. 55–62.
5. Khmelyar I. Formation of research competence of laboratory students / I. Khmelyar, O. Myalyuk // *New pedagogical thought*. – 2019. – №3 (99). – P. 152–156.

6. Maslov V. I. Scientific principles of determining the content of advanced training and training of heads of secondary schools / V. I. Maslov // *Postgraduate education in Ukraine*. – 2002. – №2. – P. 63–66.
7. Moseychuk A. R. Formation of research competence of future paramedics in the process of studying biological disciplines: dis. ... cand. ped. sciences: 13.00.04 / Anna Rifivna Moseychuk. – Odessa, 2017. – 305 p.
8. Movchan T. Research competence in the composition of key competencies of foreign students-philologists / T. Movchan // *Pedagogical sciences: theory, history, innovative technologies*. – 2018. – №10 (84). – P. 107–118.
9. New explanatory dictionary of the Ukrainian language (in three volumes). volume 1, A–K / compiled by: V. V. Yaremenko, O. M. Slipushko. – Kyiv: ACONIT Publishing House, 2006. – 926 p.
10. Regulations on distance learning z 0703-13 from 16.10.2020 [Electronic resource] / access mode: <http://zakon.rada.gov.ua> access date 30.05.2021
11. Sapozhnikov S. Some aspects of the formation of research competence of students of higher education in Ukraine in the process of professional training / S. Sapozhnikov // *Physical and Mathematical Education (FMO)*. – 2019. – №3 (21). – P. 127–130.
12. Sociological and pedagogical dictionary / ed. V. V. Radula. - K. : EX Ob. 2004. – 304 p.
13. The Great Soviet Encyclopedia / chapters. ed. AM Prokhorov, 3rd ed., – M . : Soviet Encyclopedia, 1972. – v. 10. – 592 p.
14. The latest psychological and pedagogical dictionary / comp. E. S. Rapatsevich; under common ed. A. P. Astakhov. – Minsk : Modern school, 2010. – 928 c.
15. Zimnyaya I. A. Key competencies – a new paradigm of the result of modern education [Electronic resource] / A. I. Zimnyaya // Internet-magazine "Eidos". – access mode: <http://www.eidos.ru/journal/2006/0505.htm>

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## **HIGHER EDUCATION ESTABLISHMENT MANAGEMENT AND ITS ORGANIZATIONAL AND LEGAL STATUS**

### **Summary**

The article analyzes the modern theory of educational management based on the concept of Taylor's classical theory, on the scientific approach to management functions and on the principles of Fayol's administrative theory, who introduced five elements defining the administration functions such as commanding, planning, organization, coordination, control. The paper describes the "School of Social Systems", which considers a social organization as a complex system with a number of components of its subsystems including individual, formal structure, informal structure, statuses and roles, physical environment. The investigation reveals the task that determines the specifics of the information technologies implementation following the credit system for organizing the educational process, as well as theoretically substantiates and develops the structure of information technology for planning the educational load, taking into account the ECTS requirements. The article describes the organization of the educational process of a higher education establishment being one of the most important components and stages of higher education in general, which should ensure education correspondence to the development of social and personal needs. The definition of the management concept is revealed by such scientists as V. H. Afanasiev, L. I. Danylenko, L. M. Karamushka, O. M. Kyshkel, V. I. Maslov, V. H. Shypunov, T. M. Sorochan, and others. The research defines educational establishment management as a complex, dynamic, purposeful system of ensuring the stabilization, functioning and development of an educational establishment as a system including management based on goals, tasks, patterns, principles, content, forms and methods of functioning, which are inherent in the main system structural components. The study presents and characterizes the distribution of higher education establishment management

tasks by management levels. The paper emphasizes the regulatory framework of the presented problem.

**Keywords:** management, information technologies, higher education establishment, educational establishment management, “New School”, educational process, planning, organization of a higher education establishment educational process.

### **Introduction**

The modern period of development of a democratic Ukraine is characterized by the search for ways to consistently reform all spheres of public administration, where the education system occupies a special place in its strategic importance [9].

The modern theory of educational management is based on the concept of Taylor’s classical theory and a scientific approach to management functions. This theory was focused on stably functioning organization but studied its development. The purpose of this theory was to study ensuring high-quality work of each participant. However, the excellent work of each participant in the organization cannot generally affect its productivity if the head sets ineffective goals for the organization. A. Fayol also shared this opinion, moreover, he formulated the principles of administrative theory and introduced five elements defining the administration functions including commanding, planning, organization, coordination, control.

These elements were the basis for the management of any educational establishment. He was the first to stop considering management as an exclusive privilege of senior management. Fayol claimed that “administrative functions exist at any level of the organization but the higher management level, the higher the administrative responsibility” [18].

### **Aim, subject and research methods**

One of the strategic directions of modernizing the educational establishments’ management activities is its informatization. We are talking about the introduction of computer technologies in the higher education management process to increase its effectiveness following new conceptual approaches.

Many thorough scientific studies have been devoted to the issue of educational establishment management. Thus, the works of national and foreign scientists reflect the issues of adequate information support for educational establishment management. Studying the issue, scientific works on the definition and systematization of management information of

V. I. Bondar, L. I. Danylenko, H. V. Yelnykova, Yu. A. Konarzhevskiy, V. I. Maslov, O. A. Orlov, N. M. Ostroverkhova, V. S. Pikelna, T. I. Shamova are of great value, as well as research papers of V. Yu. Bykov, V. D. Rudenko, Yu. V. Chernov on the regulation of the collection, processing, storage of organizational and administrative data, along with the works of S. I. Arkhangelskiy, I. Ye. Bulakh, H. A. Dmitrenko on providing feedback in pedagogical systems.

The researches of V. P. Bepalko, V. V. Humeniuk, L. M. Kalinina, P. V. Khudominskiy, M. L. Portnov, N. G. Protasova, V. A. Slastonin, E. P. Smirnov, V. V. Vasyliiev, and others are important in the context of this scientific study, highlighting the problems of optimizing work with organizational and management information, ensuring the information needs of teaching staff, the formation of teachers' information culture, etc.

### **Research results**

The educational process is impossible without constantly improving the professional level of administration, methodologists, supervisors, and academic teaching staff, whose competence directly affects the quality of education results. The organization of a higher education establishment educational process is one of the most important components and stages of higher education in general, ensuring that education meets the development of social and personal needs.

The modern theory of education management is based on the concept of Taylor's and Fayol's classical theories. Fayol formulated fourteen management principles. These include division of work, authority and responsibility, discipline, unity of command, unity of direction, subordination of individual interest to general interest, remuneration of personnel, centralization; scalar chain, order, equity, stability of tenure, initiative, esprit de corps (union is strength and team spirit).

Fayol considered the principles of management multifunctional and did not limit them only to the sphere of production. In his opinion, "any social organism, included in an educational establishment, is formed in the same way as the social organism of an industrial enterprise, so that at the same stage of development all social organisms are similar to each other" [19].

Noteworthy is the "School of Social Systems" creating its own "management theory", considering the social organization as a complex system with a number of its constituent subsystems including individual, formal structure, informal structure, statuses and roles, physical environment. School representatives try to investigate a person's motives in the organization,

identify their value orientation, and the motivation system for activity. The main factors are the goal and optimal ways to achieve it. The material motivation is important but not the only one.

The “New School” provides for the widespread use of cybernetics and the automatic control theory in the management process. The main aim is to improve the efficiency of solutions.

Taking into account the expediency of developing and implementing new approaches to the process of applying management technologies at the higher education establishments, in particular, the creation of information technologies for planning students’ education and teachers’ academic affairs, there arises a task to determine the specifics of fulfilling information technologies following the credit system of organizing the educational process, as well as to theoretically justify and develop the structure of information technology for planning the educational load, taking into account the ECTS requirements.

Constant professional level improvement of administration, methodologists, and academic teaching staff is an integral part of the educational process, moreover, their competence directly affects the quality of education results. The organization of a higher education establishment educational process is one of the most significant components of higher education in general ensuring that education meets the development of social and personal needs.

As V. I. Putsov claims, “despite the essential role of education in society, today it needs a systematic reform based on the fundamental changes taking place in the world education sphere, meet the today’s realities and are focused on the implementation of advanced education tasks, such as mastering the computer, the Internet, purposeful self-study, learning the positive experience of others, openness in achievements evaluating, developing and protecting their innovative projects, free choice of place, forms and terms of education” [15].

In modern conditions, management activity acts as one of the most substantial factors in the functioning and development of organizations in general and, especially, higher education establishments.

As H. V. Yelnykova points out, “there is no exact definition for the management concept in the literature. Different authors reveal this concept, emphasizing different aspects of management” [23]. For example, V. H. Afanasiev understands management as an internal property of society, which it has at all stages of its development [1] and indicates that management is a set of certain actions (operations) performed by management entities in order to transform it and ensure movement towards an established goal [2]. At the same time,

V. H. Afanasiev notes that the subject can be not only one person but also a group of people. V. H. Shypunov and O. M. Kishkel [12] define the concept of management as a continuous process of influencing a group of people to organize and coordinate their activities in order to achieve the best results at the lowest cost. T. M. Sorochan emphasizes that establishment management “can be defined as the act of creating favorable external and internal organizational conditions for effective people’ synergy” [16]. The encyclopedia provides the following definition “management is an objective process of ordering systems, the essence of which is to ensure their integrity, maintain a given mode of activity, and achieve the goal by exchanging information between their subsystems (control and managed systems) by means of direct and feedback channels. Social management influences society in order to arrange it, preserve its qualitative specifics, as well as improve and develop it” [17].

Considering the higher education establishment management as the supervision of a social and pedagogical system, we can use the definition of management formulated by L. I. Danylenko for an educational establishment “management of social and pedagogical systems is the purposeful administration influence on the mechanisms of bringing the system in line with its inherent laws, principles and functions” at the same time, it is the administration influence on the establishment’s staff activities and the educational process “in order to ensure the most positive result” [7, p. 7].

Traditionally, in the theory of educational establishment management, there is a key definition of the management process as a set of functions corresponding to a consistent change in the management cycle stages [24]. According to V. I. Maslov’s definition, “management is a set of interrelated, interacting elements, coordinated activities aimed at achieving a certain goal” [13], where “activities” are formative elements of the management system, as a rule, are general management functions. In turn, L. M. Karamushka describes more than 20 management functions including prediction, planning, management, organization, coordination, control, decision-making, recruitment, staff training, ensuring the employees’ professional career and the mental health, prevention and overcoming stress in the organization, connecting people, forming employees’ loyalty to the organization, creating a favorable psychological climate in the organization, motivation, assessment, communication, solving financial problems, representation, negotiating, signing contracts, etc. and suggests highlighting the main management functions and combining them into conceptual blocks [10, p. 8-9].

Following L. M. Karamushka, who uses the approach of American scientists M. Mescon, M. Albert, F. Hedory, described by R. Daft [6] we can differentiate the next groups of functions [10]:

- prediction and planning (determining the organization's goals and action plan for achieving it);
- organization (creation of a certain structure providing an opportunity to work effectively to achieve set goals);
- motivation (encouraging members of the organization to work for achieving personal goals and the goals of the organization);
- control (providing the achievement of the organization's desired goals).

It should be noted that “an indispensable scientific management condition is the high-quality performance by educational establishment management of all the listed functions without any exception” [5, p.14].

Today, an educational establishment has a complex infrastructure associated not only with the educational process but also with economic, finance and economics, material and technical administrative activities. In general, as V. I. Maslov notes, an educational establishment is “a complex multi-level system education, the management of which is based on the provisions of philosophy, psychology, law, economics and finance, sociology and occupational health” in their integration combination and connection [13]. The development of a market economy requires adequate adaptation to it, corresponding changes in the management system affecting not only the improvement of the organizational structure but also the redistribution of management functions by levels of responsibility, forms of interaction, etc. First of all, we are talking about such a management system (principles, functions, methods, organizational structure), which can quickly and flexibly adapt to situational changes in the internal and external environment, through the use of the latest scientific and technical achievements. In general, the meaning of management activity is to ensure effective relationships between the management system elements [22].

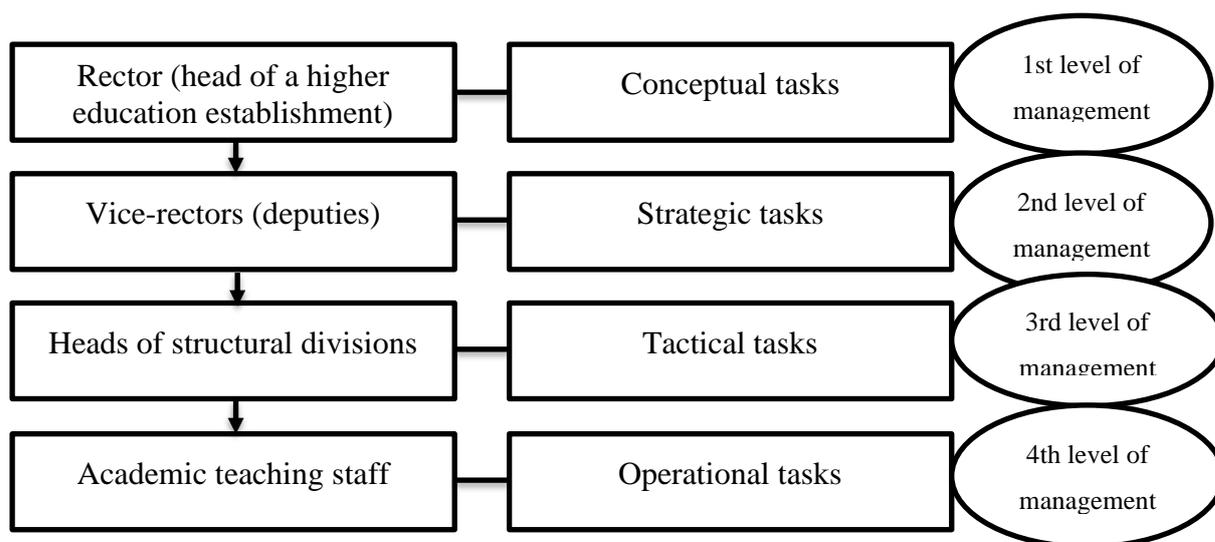
Among the management areas of higher education establishments, we can distinguish the main (functional) one related to the scientific and pedagogical process providing a certain type of product as the growth of the state intellectual potential, as well as auxiliary ones that provide the main one including financial, economic, social and household [4]. Moreover, it should be

emphasized that all types of management activities are interrelated and exert varying degrees of influence on each other.

Complementing the definition of management given by V. I. Maslov [13], we can determine *educational establishment management as a complex, dynamic, purposeful system of ensuring the stabilization, functioning and development of an educational establishment as a system including management based on goals, objectives, patterns, principles, content, forms and methods of functioning, which are inherent in the main structural components of the system.*

With this approach, management as a process takes place in stages, following the sequence of functions of the so-called universal management cycle based on the development of a management decision (modeling of further activities), organization and regulation of decision execution, evaluation of results and correction. At each of these stages, specific methods are used, which generally make up the technological process of management activities. Educational establishment management as a component of social management takes into account socio-psychological, economic, legal and ethical aspects [13, p. 39].

Considering the complex of management tasks in the higher education establishment activities, we hold a brief of T. M. Boholib and A. H. Huraliuk, who conclude that it can be presented in the form of a three-dimensional pyramid, the levels of which are temporary groups of tasks, and vertical layers are functional branches of management. Concerning higher education establishment, this pyramid can have the form shown in Fig. 1.1, where management tasks are combined, highlighted by T. M. Boholib [3, P. 72] and A. H. Huraliuk and the management levels that we identify:



**Fig. 1.1. Distribution of higher education establishment management tasks by its levels**

Higher education establishments management fully corresponds to the scheme shown but requires some clarification.

We should pay attention to the regulatory framework for this problem. According to the decree of the president of Ukraine dated September 9, 2010, On Measures to Ensure the Priority Development of Education in Ukraine, the Cabinet of Ministers of Ukraine decided to create a Unified State Electronic Database on Education by January 1, 2012, for the Ministry of Education and Science of Ukraine.

The unified state automated electronic on education (USEDE) is an automated system for accumulating, processing, storing and protecting data, including personal data, involving establishments providing educational services in Ukraine.

Data from this database is used during manufacturing:

- state-issued educational documents;
- documents on academic titles and academic degrees;
- licenses for the educational services and accreditation certificates;
- student ID card;
- for obtaining other information and processing statistical data in the interests of educational establishments, educational establishments for monitoring and making management decisions.

According to the current legislation of Ukraine [14] one can include personal information in the electronic database only after obtaining their consent. The educational establishment

should provide an administrative and organizational mechanism for collecting and storing documents as well as personal consent to the processing of relevant data in USEDE.

The development of the higher education management system at the present stage, its further improvement is possible based on a system approach. At the same time, we underline that any scientifically based system, in particular the higher education management system, should have a methodological basis. Its foundation is principles determined by the laws inherent in a particular object, and synthesizing theoretical provisions, practical experience and functions allowing us to see its essence, structure, main directions and system-forming connections.

Higher education modernization is becoming significant in the process of reforming education in Ukraine. The strategy of the higher education system is changing, educational establishments of this system are faced with the need to work not so much for the functioning of the education system, but for development, which involves changing relay tasks to research ones, identifying educational needs, studying the specifics of educational processes in the higher education system, participating in the education development programs, etc. [11]. Conceptual directions of higher education modernization are defined as:

- the regulatory framework improvement;
- development of methodological recommendations for the educational process organization in higher educational establishments;
- the material and technical base improvement of higher educational establishments, etc.

The development of the higher education system is a strategic direction for reforming society since higher education directly affects the person's formation. The higher education system will be able to make an effective impact only if it can systematically and purposefully orient the activities of the entire employees' corps of the industry (administration, academic teaching staff, methodologists) to proper efficiency such as the preparation of high-quality final products, namely a specific, educated, creative, person's wellbeing. In other words, it is necessary to take decisive steps towards radical management improvement of the entire education sphere in general, higher education in particular, in each of its establishments (educational ones, institutions, state educational management bodies), considering them as elements of the social system "person-to-person" [8].

Further development of higher education requires legal regulation of a number of regulatory documents at the state level affecting the educational process organization of the

higher education establishments, the provision of both high-quality educational services and education.

### **Conclusions**

The article determines organization as one of the significant management functions, conducts a theoretical analysis of the management formation of both a separate science and the higher education establishment management.

Higher education establishments provide following the rights of the educational process participants based on the mutual respect and understanding of differences between participants including discrimination based on the race, gender, language, religion, political or other beliefs, national, ethnic or social origin, physical or mental health, sexual orientation, and other aspects. What is more, the educational process participants are provided with academic freedom and rewards for success in their work. The administration of the higher education establishment provides an opportunity for students to freely express their views, participate in the life of the higher education establishment, as well as expand interaction with the broader student and scientific community, public organizations.

### **References**

1. Afanasiev V. G. (1975). *Sotsyalnaia ynformatsyia y upravlenye obshchestvom [Social information and public administration]*. Moskva: Polytyzdat, 408 [in Russian].
2. Artiushyna M. V. (2007). Pidhotovka do innovatsiinoi diialnosti yak komponent profesiinoho stanovlennia osobystosti v umovakh suchasnykh yevro intehratsiinykh protsesiv [Preparation for innovation activity as a component of professional development of the individual in the conditions of modern Euro integration processes]. *Humanitarnyi visnyk DVNZ «Pereiaslav-Khmelnitskyi derzhavnyi pedahohichnyi universytet imeni Hryhoriia Skovorody»*. Pereiaslav-Khmelnitsky, 21-24 [in Ukrainian].
3. Boholib T. M. (2004). *Pryntsypy upravlinnia vuzom [Principles of university management]*: monohrafiia. Kyiv: T-vo «Znannia», KOO. 204 [in Ukrainian].
4. Bondar S. P., Momot L. L., Lypova L. A., Holovko N. I. (2003). *Perspektyvni pedahohichni tekhnolohii v shkilnii osviti [Promising pedagogical technologies in school education]*: navch. posibnyk / za zah. red. S. P. Bondar. Rivne: Redakts.-vyd. tsentr «Tetis» Mizhnar. un-tu «REP» im. akademika Stepana Demianchuka, 200 [in Ukrainian].

5. Chmil A. I., Maslov V. I., Dmytrenko H. A., Yelnykova H. V., Fedorov H. V. (2006). *Pidhotovka kerivnyka navchalnoho zakladu do upravlinskoj diialnosti v rynkovykh umovakh [Preparation of the head of an educational institution for management activities in market conditions]: navch. posibnyk*. Kyiv: Lohos, 128. [in Ukrainian]
6. Daft R. L. (2000) *Menedzhment [Management]*. Per. z anhl. SPb : Pyter. 832 [in Russian].
7. Danylenko L. I. (2002). Upravlinnia zahalnoosvitnim navchalnym zakladom yak vidkrytoiu sotsialno-pedahohichnoiu systemoiu [Management of a general education institution as an open social and pedagogical system]: *konspekt leksii z kursu pidvyshchennia kvalifikatsii kerivnykiv zahalnoosvitnikh navchalnykh zakladiv*. Kyiv: TsIPPO APN Ukrainy. 17 [in Ukrainian].
8. Danylova H. S., Dmytrenko H. A., Doroshenko E. A. (2000). *Pisliadyplomna osvita: problemy upravlinnia, metodychne zabezpechennia [Postgraduate education: management problems, methodological support]: navch.-metod. posibnyk*. Kyiv: IZMN. 188 [in Ukrainian].
9. Huraliuk A. H. (2005). Perspektyvy vprovadzhennia suchasnykh kompiuternykh tekhnolohii v upravlinskii diialnosti kerivnyka zakladu osvity [Prospects for the introduction of modern computer technologies in the management activities of the head of an educational institution]. *Pedahohika ta psykhologhiia : Naukovyi visnyk Chernivetskoho universytetu*. Vyp 258. P. 44-49 [in Ukrainian].
10. Karamushka L. M. (2003). *Psykhologhiia upravlinnia [Management psychology]: navch. posibnyk*. Kyiv: Milenium, 344 [in Ukrainian].
11. Khymynets V. V. (2005). *Naukovo-doslidna robota v instytutakh pisliadyplomnoi pedahohichnoi osvity [Research work in institutes of postgraduate teacher education]*. Uzhhorod: Inform.-vyd. tsentr ZIPPO. 148 [in Ukrainian].
12. Manako V., Manako O., Danylova O., Voichenko O. (2006). *Osnovy buduvannia saitiv [Basics of building websites]*. Kyiv: Vyd. dim «Shkil. svit». 120 [in Ukrainian].
13. Maslov V. I. (2007). *Naukovi osnovy upravlinnia ta funktsii protsesu upravlinnia zahalnoosvitnimy navchalnymy zakladamy [Scientific foundations of management and functions of the management process of general education institutions]: navch. posibnyk*. Ternopil: Aston, 150 [in Ukrainian].
14. *Pro zakhyst personalnykh danykh [On personal data protection]: Zakon Ukrainy vid 01.06.2010 r. № 2297-VI*. URL: <https://zakon.rada.gov.ua/laws/show/2297-17#Text>. [in Ukrainian]

15. Putsov V. I. (2007). Teoretychni osnovy rozvytku pisliadyplomnoi osvity yak nevidiemnoi skladovoi neperervnoi osvity [Theoretical foundations of the development of postgraduate education as an integral component of continuing education]. *Pisliadyplomna osvita v Ukraini*. №2. 7-11 [in Ukrainian].
16. Sorochan T. M. (2005). Pidhotovka kerivnykiv shkil do upravlinskoj diialnosti: teoriia ta praktyka [Preparation of school leaders for managerial activities: theory and practice]. *Luhanskyi natsionalnyi pedahohichnyi un-t im. Tarasa Shevchenka*. Luhansk: Znannia, 384 [in Ukrainian].
17. *Ukrainskyi radianskyi entsyklopedychnyi slovnyk [Ukrainian Soviet encyclopedia]: [in 3 volumes] / hol. red. F. S. Babychev*. Kyiv, 736 [in Ukrainian].
18. Ursul A. D. (1975) *Problemy ynformatsyy v sovremennoi nauke [Information problems in modern science]*. Moskva: Nauka, 287 [in Russian].
19. Ursul A. D. (1975). *Ynformatsyia: metodolohycheskye aspekty [Information: methodological aspects]*. Moskva: Nauka, 295 [in Russian].
20. Verbovskyi I. A. (2015). Teoretychni aspekty stanovlennia upravlinnia vprovadzhennia informatsiinykh tekhnolohii u navchalnyi protses ZVO [Theoretical aspects of the formation of the Department introduction of information technologies in the educational process of higher education institutions]. *Humanitarnyi visnyk DZVO «Pereiaslav-Khmelnitskyi derzhavnyi pedahohichnyi universytet imeni Hryhoriia Skovorody»*. Dodatok 1 do Vyp. 35, Tom IX (60): Tematychnyi vypusk «Vyshcha osvita Ukrainy u konteksti intehratsii do yevropeiskoho osvitnoho prostoru». Kyiv : Hnozys. 45-52 [in Ukrainian].
21. Verbovskyi I. A., Rudnytska O. P., Semeniuk T. V. (2021). Pravove rehuliuвання upravlinnia zakladom vyshchoi osvity mizhnarodnym ta zarubizhnym zakonodavstvom [Legal regulation of management of a higher education institution by international and foreign legislation] [electronic resource]. *Yurydychnyi naukovyi elektronnyi zhurnal*. 2021. № 3. 187-190 URL : <http://www.lsej.org.ua/index.php/ostannij-vipusk> [in Ukrainian].
22. Yankovskyi S. Kontseptsyy obshchei teoryy ynformatsyy [Concepts of general information theory]. *Science and technology. Электронный ресурс*. URL: <http://n-t.ru/tp/ng/oti.htm> [in Russian].
23. Yelnykova H. V. (1993). *Naukovi osnovy rozvytku upravlinnia zahalnoi serednoi osvity v rehioni [Scientific foundations of the development of the Department of general secondary education in the region]: monohrafiia*. Kyiv: DAKKO, 303 [in Ukrainian].

24. Zabrodska L. M. (2003). *Informatyzatsiia zakladu osvity: upravlinskyi aspekt* [*Informatization of an educational institution: a managerial aspect*]: metod. posib. Kharkiv: Vyd. hrupa "Osnova", 240 [in Ukrainian].

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## **CLUSTER TECHNOLOGIES AS MODERN EDUCATIONAL TRENDS IN THE DEVELOPMENT OF MEDICAL EDUCATION IN XXI CENTURY**

### **Summary**

Based on the analysis of scientific sources, the article presents the concept of a cluster, its main characteristic features, and analyzes the essence of the concept of "educational cluster". The main advantages and principles of the cluster approach in the development of medical education are described on the example of the region. It has been studied that the cluster approach in education is a new management technology that will help increase the competitiveness of educational institutions both at the regional and state levels. The main functions of the state, scientific and educational institutions and employer organizations as the three main components of the cluster are defined. Currently, there is a large number of interpretations of the cluster concept, the interpretation is carried out depending on the industry in which this term is applied, however, its essence remains unchanged. Equality of partners, transparency in work and trust between them are important conditions for cooperation in the cluster. Cluster technologies provide for multilevel management, cooperation of partner legal entities from various industries (management entities, business structures, educational and scientific institutions, public organizations) and the formation of a favorable environment for cooperation.

**Keywords:** cluster, cluster approach, new management technologies, cluster education, medical education, current educational trends

## **Introduction**

In the 21st century, the education in Ukraine faced the issue of increasing the competitiveness of specialists in the global labor market, which would help to increase the rating of the national education in the world and reduce the outflow of labor personnel abroad. The basis, that can ensure innovative development of the national education, improve its quality and competitiveness of graduates, can be the education management system that will perform not only a guiding and regulatory function, but also provide conditions for scientific, methodological and material and technical modernization of educational institutions. This problem can be solved by introducing a cluster approach to the activities of educational institutions by creating territorial educational associations at the regional level that are interested in training experienced specialists.

The cluster approach is considered a new management technology that helps to increase the competitiveness of both an individual region or industry, and the state as a whole. The founder of the cluster system is the American scientist Michael Porter (Harvard, 1990). According to his research, in order to achieve the most effective economic development, states need to divide the economy into separate segments – clusters, within which the desired level of competition will be maintained.

World practice shows that for the last three decades, the process of cluster formation has become quite active. The United Nations has prepared a set of recommendations to assist governments in developing and implementing cluster development programmes. In general, according to experts, by this time clustering covers about 50% of the economies of the world's leading countries.

## **Theoretical background**

A large number of interpretations of the present cluster concept are interpreted depending on the industry in which it is used, however, does not change its essence. M. Porter defined the concept of "economic cluster", pointing out that the competitiveness of the economic environment affects the competitiveness of companies, and a cluster is a system of "producers, suppliers, consumers, industrial production, interacting research institutes" and are concentrated on a territorial (regional) basis (Porter, 2005). In addition, according to the scientist, clusters may include government agencies, educational institutions, industry associations that provide training, postgraduate education, and financial and technical support for research. The analysis of the scientific literature proved awareness of the importance of a

cluster approach to solving such problems as modernization and technological development of the national economy of different countries of the world.

The influence of clusters on "self-organization and self-development of the country's innovation infrastructure in conditions of limited financial resources" was studied by A. A. Kolesnikov. A. Knyazevich and I. Britchenk believe that clusters will contribute to the formation of the basis for the implementation of innovations, investment inflows, and the development of medium and small businesses (Knyazevich and Britchenko, 2015, p. 27). V. Fedorova suggested that the initiators of cluster projects should be regional institutions and suggested four options for the cluster policy at different levels of production interaction: non-regional spatial clusters; territorial production complexes; spatial clusters; cluster initiatives. The formation of cluster production associations should be based on the scientific principle of selection (Fedorova, 2013, p. 94).

O. Maslak formed theoretical and methodological provisions and practical recommendations for the formation and development of clustering systems of the national economy (Maslak, 2019). M. Gomenyuk defines the cluster as an important tool for creating a competitive national economy, and the cluster approach as an important factor in the quality of economic growth in the region (Gomenyuk, 2019, p. 79).

According to A. Kania, clusters can provide a number of advantages for enterprises and regions. The success of the clusters inspires enthusiasm for cooperation in the region and strengthens local patriotism and supports the creation of a local supply chain. A favorable "entrepreneurial atmosphere" around clusters attracts investors, and the need for a constant comparison with competitors encourages innovation (Kania, 2017, p. 6).

Since many authors believe that the cluster approach provides for "multi-level management, cooperation of subjects of various industries and the formation of a favorable environment for cooperation and development" (Stoychik, 2020, p. 183), clusters can be considered and applied as types of social partnership. Combining educational institutions with industry enterprises, business structures, civil organizations, and local self-government bodies will help improve the quality of education, reduce training periods, improve the skills of specialists and their competitiveness in the labor market.

Researchers consider the educational cluster as an institutional basis for the development of the regional labor market and an environment for harmonizing the interests of the region (Sibirtsev, 2016, p. 291); as an integrated combination of their structure-forming

components with the natural resource, investment, innovation, and infrastructure capabilities of the territory to ensure the effective use of its economic space (Lyubchenko, 2017). They believe that in Ukraine, although so far there is no tight relationship between educational institutions and enterprises, there is no forecasting of demand for certain specialists (Reshetnyak, 2018), but the prerequisites for the development of scientific and educational clusters have already been formed – associations of research institutes and educational institutions whose task is to train and retrain personnel (Pyatnitska, 2016, p. 201).

The cluster approach in the field of education is considered as an effective tool for a long-term development (Zhuk, Drozdovskaya, 2013, p. 151), it is a group of educational institutions that are in partnership with industry enterprises (Korchagina, 2009, p. 81), and its basis is the institution of Higher Education.

The educational cluster, according to M. Vorona, is a union of closely related and geographically close placements of educational institutions that contribute to the joint development and growth (Vorona, 2016, p. 40). The creation of a scientific and educational cluster will ensure stable information links between its participants, establish a system of dissemination of innovative technologies, continuity of education, mobility of applicants, and increase the possibility of employment of specialists in the specialty (Didkivska, 2016, p. 249). The need to create medical clusters in order to improve the health of the population is described in the works of N. Titova (2017), Zh. Meshcheryakova (2017), E. Zakharova (2013), A. Dembych (2016), M. Tolstopiatenko (2013). For the comprehensive provision of qualified medical services in recent decades, the clusters of medical tourism began to be formed in many countries of the world (Mikhailyuk, 2019, p. 42).

The chief specialist of the Department of Strategy and Investor Assistance of the city of Lublin M. Stroke-Sadło defined the term "cluster" as a collaboration. Cluster mission consists in creating a network of mutual relations, sharing information, knowledge and experience aimed at supporting the development of the medical and educational industry. The Lublin medical cluster was established in 2014 according to the initiative of the city of Lublin and the Lublin Medical University. Currently, one hundred and three organizations cooperate in the cluster, including eighty members – medical ones, as well as universities, scientific institutions, hospitals, business institutions and representatives of public administration (Strok-Sadło, 2016, p. 13). The cluster structure includes the following tasks: project financing from European funds, rehabilitation, dentistry, medical tourism, medical engineering technologies (biotechnologies), and international cooperation.

In general, according to the data of The Polish Agency for Enterprise Development and its published "Report on the inventory of clusters in Poland 2015", as of the beginning of October 2015, there were 134 clusters operating in Poland.

### **Results and discussion**

The idea of the regional economy renewal at the expense of internal reserves in Ukraine was applied for the first time in Khmelnytsky region by the Association "Podillya Pershy" (Knyazevych, 2015, p. 26). The advantages of using cluster technologies in the regional economy are obvious: 1) combining efforts to provide the industry with qualitatively trained professional personnel in the required number; 2) organizational control at all stages of cluster development; 3) increasing the scale of production and scientific support of organizations; 4) speeding up the implementation of investment projects; 5) saving costs of cluster participants and increasing the efficiency of budget expenditures to stimulate complex projects; 6) increasing investment attractiveness and increasing tax revenues to the budget; 7) reducing investment risks for cluster participants; 8) rotation of highly qualified personnel. And what is extremely important for educational institutions is the possibility of systematically solving issues of training and retraining of personnel. The unit of the global economic space of any state is a region that becomes of strategic importance for the prosperity of the country. The most progressive and innovative approach to regional development in the context of economic modernization is cluster development of the territory.

Within the framework of the cluster concept in the field of education, cluster can be considered a management unit as an intra-industry entity, with its internal dynamics and diversity due to the intensive multi-directional interaction of its participants. An educational cluster can include a set of such legal entities as an education management body, scientific and educational institutions, and employer organizations that are united by contractual relations to achieve a certain goal that is training a competitive highly educated specialist.

There are several general principles of forming an educational cluster: 1) the principle of complex formation of general and professional competencies based on the unity of theory and practice; 2) the principle of unity of training, upbringing and development in the cluster; 3) the principle of stimulating and motivating applicants for self-education and self-development; 4) the principle of combining teamwork with an individual approach; 5) the principle of focusing on the personal potential of the applicant; 6) the principle of compliance of the

regulatory, scientific, methodological and information base of cluster participants with the requirements of state educational standards.

When implementing a cluster approach in education, in addition to consolidating a common goal, it is necessary to have a regulatory framework for joint activities of cluster participants, management mechanisms and interaction between cluster participants, as well as the availability of special cluster technologies in accordance with the declared common goal.

The priority guidelines for the formation of a regional educational cluster can be considered: continuity of education; interrelation of programs of different educational levels; unity of scientific and educational processes; close contact with the social and economic environment of the region; scientific, methodological and informational interaction between all participants of the cluster; equality and consideration of their interests; orientation to the development and practical implementation of innovative educational technologies.

An important distinguishing feature of an educational cluster is its innovation orientation. The cluster system allows activating innovation activities at the regional level, encourages scientific research, and provides conditions and opportunities for implementing the results of scientific research in practice. The use of a cluster approach in education will help to increase the efficiency of using human, financial, information, intellectual, material and technical resources in training of specialists.

Therefore, in the cluster we can distinguish three key engines of the innovation process: the state, scientific and educational institutions, and employer organizations. At the same time, the state takes on the functions of improving the legislative and regulatory framework, ensures the creation and development of a cluster in the field of education; the formation of a state (regional) order for training specialists; promoting the development of education in the state and at regional levels; creating incentives for businesses to invest in personnel training, in the development of the education system; the development and implementation of educational standards; promoting professional self-realization of each citizen of the country.

Educational organizations working within the framework of the cluster approach strengthen such areas of activity as professional orientation, adaptation of educational programs to the requirements of the regional management body and employers, improving the quality of training of specialists. Scientific institutions are assigned such functions as generating ideas and developing new technologies that ensure the innovative development of cluster participants. The functions of employers in implementing the cluster are quite broad: participation in the development and accreditation of educational programs, forming a list of qualification and other

requirements for graduates, conducting state certification of students, organizing practical training, and so on.

An important requirement for the conditions of socio-economic development of regions in the state is the reform of the education system, including the medical one, according to a cluster approach based on the interaction, partnership, cooperation between all parties involved: industry management bodies, scientific and educational institutions, employers, public organizations. At the same time, it is of great importance that the activities of educational institutions meet the needs of the social sphere of the region and the real sector of the economy.

The goal of the cluster-oriented approach in medical education is to train innovation-oriented personnel in accordance with the real needs of the regional healthcare industry, eliminate barriers to innovation and investment. The cluster approach, which is gradually being implemented in the healthcare sector of Cherkasy region, is based on the interaction, partnership and cooperation between all participants of the cluster: the Health Department, the Medical Academy, regional health institutions, public organizations. The cluster approach allows organizing the activities of the healthcare industry, so that, firstly, the potential of each member of the cluster really increases, and secondly, the industry receives a number of specialists who meet its needs.

The advantages of the cluster approach in healthcare are industry support for the cluster project and improvement of the regulatory framework for the functioning of the cluster. The conditions for the precise functioning of the cluster are as follows: determining the need for training specific specialists, properly organized professional orientation in the educational institution, determining the preferences of applicants in the professional sphere, meeting the needs of applicants, a clear balance between the needs of the industry and the adequacy of their training, expanding corporate solidarity of cluster members, creating and implementing their own industry strategies.

The interaction of educational and medical institutions in the cluster approach to the healthcare in Cherkasy region can be traced on the example of the Cherkasy Medical Academy and healthcare institutions of the city and region. This interaction is based on the clear performance of the functions of each cluster member. The Academy's functions include the following changes in the education system: conducting effective professional orientation, developing innovative educational and professional programs, adapting basic educational programs to the requirements of the industry management body and medical institutions

(regional health care institutions) as potential employers. The functions of the Department of Health and medical institutions of the region include: the formation of a regional order for the training of specialists for the region; participation in the development of new educational programs; participation in the formation of a list of qualification requirements for graduates; consideration of existing and additional educational and professional programs, providing proposals for their adaptation; organization and implementation of practical training of students; participation in the work of the state final certification; promotion of professional self-realization of each employee.

Common functions that unite cluster participants include generating ideas, developing and implementing innovative technologies that ensure continuous professional development of medical workers, educational and informational interaction between all divisions of the cluster, equality and consideration of the interests of all its members.

### **Summary and conclusion**

The cluster approach in medical education will create appropriate conditions for training innovation-oriented specialists for the needs of the region.

The joint activities of the cluster participants are versatile and multifaceted. Firstly, it is monitoring the views of employers and teachers on the presence of professional and personal qualities of graduates formed during training. Monitoring will allow identifying the needs and expectations of both external and internal consumers of services, comparing expectations and evaluating the quality of training, timely adjusting and identifying promising vectors of partnership development, meeting the needs of each specialist in the labor market, and improving the quality of graduate training. Secondly, it is the organization of the activities of healthcare institutions and educational institutions in accordance with the quality management system of education, constant access to the information on the quality of training of specialists and the possibility of timely correction of training; organization and conduct of training and industrial practice; assessment of the quality of training of specialists by independent experts within the framework of state certification of applicants. Thirdly, employers participate in the development of basic and additional educational programs, correct and update their content in accordance with the requirements of the region, increase the level of motivation of applicants for the chosen profession, and promote their career within the chosen profession. Participation of employers in the development and implementation of advanced training programs for medical workers, improving the level of knowledge and skills within their professional

activities in the specialty, developing and implementing professional retraining programs, mastering general and professional competencies necessary for a new type of professional activity, acquiring new qualifications. Holding joint events within the cluster such as scientific and practical conferences, seminars, business meetings also influences the development of corporate solidarity, expands partnership relations and creates an atmosphere of mutual cooperation.

Thus, it is difficult to overestimate the results of the activities of the Medical Academy and healthcare institutions within the educational cluster. The region has created appropriate conditions for training innovation-oriented specialists, successfully developed professional behavior and improved professional culture of employees, increased the use of personnel, financial, information, intellectual, logistics and other resources in training specialists, increased the innovation potential of cluster participants, provided motivation and consolidation of medical specialists in accordance with the chosen profession.

### **Bibliography**

1. Dembych A.A., Zakyeva L.F. (2016) Medytsynskye klastery na terrytoryy medytsynskoho okruha h. Kazan, kak «tochky rosta» medytsyny rehyona [Medical clusters on the territory of the medical region of Kazan, as "points of growth" for the medicine of the region]. *Yzvestyia KHASU*, № 2 (36). S. 79-86. URL: <https://cyberleninka.ru/article/n/meditsynskie-klastery-na-territorii-mo-g-kazan-kak-tochki-rosta-meditsyny-regiona>.
2. Didkivska, O.H. (2016). Osoblyvosti ta pryntsyipy rozvytku naukovo-osvitnoho klastera. [The features and principles of the development of an educational cluster]. *Skhidna Yevropa: ekonomika, biznes ta upravlinnia. Prydniprovska derzhavna akademiia budivnytstva ta arkhitektury*. Vypusk 5 (05), S. 243-249. URL: <https://chmnu.edu.ua/wp-content/uploads/2019/07/Didkivska-O.G..pdf>.
3. Fedorova, V. H. (2013). Klasternyi pidkhid do orhanizatsii vyrobnychoi vzaiemodii ta yoho mozhlyvi varianty v mezhakh rehionu. [Cluster approach to organization of industrial cooperation and possible options within the region]. *Ekonomika. Menedzhment. Pidpriemnytstvo*, № 25(2), S. 89-96. URL: [http://nbuv.gov.ua/UJRN/ecmepi\\_2013\\_25%282%29\\_\\_11](http://nbuv.gov.ua/UJRN/ecmepi_2013_25%282%29__11).

4. Homeniuk, M.O. (2019). Klaster yak innovatsiina forma terytorialnoho rozvytku. [Cluster as an innovative form of territorial development]. *Naukovyi visnyk Mukachivskoho derzhavnoho universytetu*. Ser. : *Ekonomika*. Vyp. 1, S. 76-81. URL: [http://nbuv.gov.ua/UJRN/nvmdue\\_2019\\_1\\_15](http://nbuv.gov.ua/UJRN/nvmdue_2019_1_15).
5. Kania, A. (2017). Role of innovative clusters in building regional competitiveness based on the example of badenwürttemberg and greater poland voivodeship. *Rozprawa doktorska. Katedra Konkurencyjności Międzynarodowej. Biblioteka Główna Uniwersytetu Ekonomicznego w Poznaniu*, 248 s.
6. Kniazevych, A.O., Britchenko, I.H. (2015). Klasternyi pidkhd do stvorennia innovatsiinoi infrastruktury krainy [Sluster approach to the creating of innovative infrastructure of the country]. *Naukovyi visnyk Mukachivskoho derzhavnoho universytetu, Seriiia Ekonomika*. Vyp. 2(4). Chastyna 1, S. 24-29.  
URL: <https://dspace.uzhnu.edu.ua/jspui/bitstream/lib/23291/1/>
1. *Klasternyi%20pidkhd%20do%20stvorennia%20innovatsiinoi%20infrastruktury%20krai ny.pdf*.
7. Korchahyna, N.A. (2019). Obrazovatelnye klastery kak osnova povysheniya konkurentosposobnosti uchebnykh zavedenyi [Educational clusters as a basis for increasing the competitiveness of educational institutions]. *Prykaspyskiyi zhurnal: upravlenye y vysokye tekhnolohy*. № 3(7), S. 78-84.
8. Liubchenko, N. (2017) Potentsial osvithnoho klastera yak resurs innovatsiinoho rozvytku systemy osvity v umovakh suspilnykh transformatsii [Potential of the cluster mechanism as a resource of administration of education in terms of authority's decentralization]. *Pisliadyplomna osvita v Ukraini [Tekst] : metodolohiia, pedahohika, psykholohiia, upravlinnia, dosvid, normatyvno-metodychna baza, №1. Nats. akademiia ped. nauk Ukrainy*. Kyiv : Universytet menedzhmentu osvity, S.84-91. URL: <http://umo.edu.ua/zhurnal-pisljadiplomna-osvita-v-ukrajini-2/zhurnal-pisljadiplomna-osvita-v-ukrajini--12017>.
9. Maslak, O. O. (2019). Formuvannia i rozvytok system klasteryzatsii natsionalnoi ekonomiky [Formation and development of clustering systems of the national economy] : dysertatsiia na zdobuttia naukovooho stupenia doktora ekonomichnykh nauk : 08.00.03 – ekonomika ta upravlinnia natsionalnykh hospodarstvom. Ministerstvo osvity i nauky Ukrainy, Natsionalnyi universytet «Lvivska politekhnika». Lviv, 581 s. Bibliohrafiia: s. 461–527 (673 nazvy).

10. Meshcheriakova Zh.V. (2017). Medytsynskiy klaster v systeme zdravookhraneniya rehyona kak ynnovatsyonnaia model yntehratsyy subektov hosudarstvenno-chastnoho partnerstva [The medical cluster in the health care system is renowned as an innovative model of the intention of the subjects of public-private partnership]. *Ekonomyka y biznes: teoriya y praktyka*, № 3. S. 43-45. URL: <https://cyberleninka.ru/article/n/meditsynskiy-klaster-v-sisteme-zdravookhraneniya-regiona-kak-innovatsionnaya-model-integratsii-subektov-gosudarstvenno-chastnogo>.
11. Mykhailiuk, O. L., Ukhlicheva, I. V. (2019). Svitovyi dosvid rozvytku klasteriv medychnoho turyzmu [World experience in the development of medical tourism clusters]. *Visnyk sotsialno-ekonomichnykh doslidzhen : zb. nauk. prats / Za red. : M. I. Zvieriakova (holov. red.) ta in.* Odesa : Odeskyi natsionalnyi ekonomichnyi universytet, № 2-3 (70-71). S. 40-52.
12. Piatnytska, H.T. (2016). Naukovo-osvitni klastery: vidmitni kharakterystyky ta peredumovy rozvytku. [Scientific-educational clusters: the distinctive features and preconditions of development]. *Marketynh i menedzhment innovatsii*, № 3, S. 191-207. URL: <https://mmi.fem.sumdu.edu.ua/journals/2016/3/191-207>.
13. Porter, M. (1993). *Mezhdunarodnaya konkurenciya* [International competition]. Moskva, Rossiya: Mezhdunarodnye otnosheniya, 896 s. URL: <http://book.uraic.ru/blog/?p=9583>.
14. Reshetniak, O.I., Zaika, Yu.A., (2018). *Ekonomichnyi mekhanizm formuvannia osvitnikh klasteriv v Ukraini : monohrafiia* [An economical mechanism for the formation of sacred clusters in Ukraine: monograph]. Nar. ukr. akad., [kaf. ekonomiky ta prava]. Kharkiv : Vyd-vo NUA, 204 s. URL: [http://nbuv.gov.ua/UJRN/Pekon\\_2015\\_4\\_21](http://nbuv.gov.ua/UJRN/Pekon_2015_4_21).
15. Stoichyk, T.I. (2020). Osvitnii klaster yak forma sotsialnoho partnerstva [Educational cluster as a form of social partnership]. *Visnyk pisladyplomnoi osvity. Vypusk 11(40). Seriya «Pedahohichni nauky»*, S. 183-198. URL: [https://doi.org/10.32405/2218-7650-2020-11\(40\)](https://doi.org/10.32405/2218-7650-2020-11(40)).
16. Strok-Sadło, M. (2016). Klaster znaczy współpraca [Cluster means collaboration]. *Medicus*, Vyp. 12, MLIL: Lubel, S. 13. URL: <https://medicus.lublin.pl/wp-content/uploads/2016/12/Medicus-12-2016.pdf>.
17. Sybirtsev V.V. (2016). Osvitnii klaster yak instyutsionalna osnova rozvytku rehionalnoho rynku pratsi. [The educational cluster as the institutional framework for the regional labor

- market development]. *Ekonomika i orhanizatsiia upravlinnia*. №3(23), S. 282-292. URL: [file:///D:/!User/Downloads/2897-Tekst%20statti-5836-1-10-20170118%20\(2\).pdf](file:///D:/!User/Downloads/2897-Tekst%20statti-5836-1-10-20170118%20(2).pdf).
18. Tolstopiatenko M.A., Zynkovskaia N.V. (2013). Farma-medysynskyi klaster: model y problemy formyrovanyia. [Pharma-medical cluster: model and problems of formation]. *Problemy ekonomyky, fynansov y upravleniia proyzvodstvom*, № 33. S. 94-102. URL: <https://cyberleninka.ru/article/n/regionalnye-meditsinskie-klastery-analiz-problem-nachalnogo-etapa-razvitiya-i-puti-ih-resheniya>
19. Tytova, N. Yu. (2017). Medysynskyi klaster: poniatye y osobennosti. [Medical cluster: concept and features]. *Azymut nauchnykh yssledovanyi: ekonomyka y upravlenye*. T. 6. № 4(21), S. 227-229. URL: <https://cyberleninka.ru/article/n/meditsinskiy-klaster-ponyatie-i-osobennosti/viewer>.
20. Vorona, M. I. (2016). Osvitni klastery yak instrument derzhavnoi polityky na rynku osvitnikh posluh [Educational clusters as a tool of public policy on the market of educational services]. *Aspekty publicnogo upravlinnia*, № 35-36, S. 34-41. URL: [http://nbuv.gov.ua/UJRN/aplup\\_2016\\_35-36\\_6](http://nbuv.gov.ua/UJRN/aplup_2016_35-36_6).
21. Zakharova E.N., Kovaleva Y.P. (2013). Formyrovanye medysynskoho klastera kak napravlenye yntehratsyonnoho vzaymodeistviya subektov rehyonalnoi medysynskoi sfery [Formation of a medical cluster as a direction of interactive interaction of subjects of the rehoonal medical sphere]. *Vestnyk Adyheiskoho hosudarstvennoho unyversyteta*, № 4. S. 216-222. URL: <https://cyberleninka.ru/article/n/formirovanie-meditsinskogo-klastera-kak-napravlenie-integratsionnogo-vzaimodeystviya-subektov-regionalnoy-meditsinskoy-sfery>.
22. Zhuk, O. P., Drozdovska, L. O. (2013). Klasternyi pidkhid u protsesi optymizatsii systemy osvity Ukrainy. [Cluster approach in education process optimization of Ukraine]. *Visnyk Odeskoho natsionalnoho unyversytetu. Ekonomika*. T. 18, Vyp. 3(1), S. 151-154. URL: [http://nbuv.gov.ua/UJRN/Vonu\\_econ\\_2013\\_18\\_3%281%29\\_\\_40](http://nbuv.gov.ua/UJRN/Vonu_econ_2013_18_3%281%29__40).

## **Regulamin nadsyłania i publikowania prac w Zeszytach Naukowych WSA**

1. Zeszyty Naukowe Wyższej Szkoły Agrobiznesu, zwane dalej Zeszytami, są periodykiem naukowym wydawanym w nieregularnym cyklu wydawniczym.
2. Treść każdego Zeszytu odpowiada zakresowi tematycznemu jednego z odpowiednich wydziałów w Wyższej Szkole Agrobiznesu t. Wydziałowi Rolniczo-Ekonomicznemu, Wydziałowi Technicznemu, bądź Wydziałowi Medycznemu.
3. Redakcja Zeszytów mieści się w sekretariacie Wydawnictwa Wyższej Szkoły Agrobiznesu. Pracą redakcji kieruje redaktor naczelny.
4. W celu zapewnienia poziomu naukowego Zeszytów oraz zachowania właściwego cyklu wydawniczego redakcja współpracuje z krajowymi i zagranicznymi jednostkami naukowymi, stowarzyszeniami oraz innymi instytucjami.
5. Do oceny przyjmowane są dotychczas niepublikowane oryginalne prace redakcyjne, monograficzne, pogładowe, historyczne, teksty źródłowe, sprawozdania z posiedzeń naukowych, oceny książek, komunikaty naukowe, wspomnienia oraz wiadomości jubileuszowe. Opracowania przyjmowane są przez redakcję do końca czerwca każdego roku. Redakcja nie zwraca Autorom nadesłanych materiałów.
6. Do publikacji należy dołączyć oświadczenie o oryginalności pracy oraz o tym, że nie została zgłoszona do innej redakcji (wzór oświadczenia jest możliwy do pobrania na stronie internetowej WSA – załącznik nr 1 do Regulaminu). Oświadczenie powinno zawierać adres pierwszego autora pracy, numer telefonu oraz e-mail. W oświadczeniu powinna być zawarta zgoda (podpis) wszystkich współautorów pracy.
7. Prace są publikowane w języku polskim lub angielskim z uwzględnieniem opinii redaktora językowego.
8. W oświadczeniu dołączonym do tekstu należy opisać wkład poszczególnych autorów w powstanie pracy oraz podać źródło finansowania publikacji. „*Ghostwriting*” oraz „*guest authorship*” są przejawem nierzetelności naukowej, a wszelkie wykryte przypadki będą demaskowane i dokumentowane, włącznie z powiadomieniem odpowiednich podmiotów (instytucje zatrudniające autorów, towarzystwa naukowe, stowarzyszenia edytorów naukowych itp.).

9. Przekazane do redakcji opracowania są wstępnie oceniane i kwalifikowane do druku przez Naukową Radę Redakcyjną, zwaną dalej Radą. Skład Rady określany jest przez Senat WSA.
10. Publikacje wstępnie zakwalifikowane przez Radę są oceniane przez recenzentów, zgodnie z procedurą recenzowania opublikowaną na stronie internetowej WSA w zakładce Zeszyty naukowe WSA. Łącznie z opinią recenzent wypełnia deklarację konfliktu interesów, stanowiącą załącznik nr 2 do regulaminu. Redakcja powiadamia Autorów o wyniku oceny, zastrzegając sobie prawo do zachowania poufności recenzji.
11. Za proces wydawniczy Zeszytów jest odpowiedzialny sekretarz naukowy redakcji, który zatwierdza układ treści Zeszytów, określa wymagania wydawnicze dla publikowanych materiałów, współpracuje z recenzentami, przedstawia do zatwierdzenia całość materiałów przed drukiem Naukowej Radzie Redakcyjnej, współpracuje z Radą i innymi instytucjami w zakresie niezbędnym do zapewnienia poziomu naukowego Zeszytów oraz zachowania cyklu wydawniczego.
12. Redakcja zastrzega sobie możliwość odmowy przyjęcia artykułu bez podania przyczyn.
13. Nadesłane materiały, niespełniające wymagań wydawniczych określonych przez redakcję, są zwracane Autorowi/Autorom.
14. Wydawnictwo Wyższej Szkoły Agrobiznesu nie wypłaca wynagrodzenia za nadesłane publikacje zakwalifikowane do druku w Zeszytach.
15. Wersją pierwotną (referencyjną) czasopisma jest wydanie papierowe. „Zeszyty Naukowe WSA” są dostępne także na stronie internetowej Wyższej Szkoły Agrobiznesu – [www.wsa.edu.pl](http://www.wsa.edu.pl), w zakładce Wydawnictwa.

## Wymagania wydawnicze - Zeszyty Naukowe WSA

1. Artykuły powinny być przygotowane w formie wydruku komputerowego oraz w wersji elektronicznej, w języku polskim lub angielskim. W celu usprawnienia procesu wydawniczego prosimy o rygorystyczne przestrzeganie poniższych zasad:

- przesłany artykuł powinien być opatrzony dokładną afiliacją Autora/Autorów,
- objętość artykułu nie może przekraczać 15 stron formatu A4,
- imię i nazwisko Autora/ów – czcionka 12 pkt,
- nazwa instytucji/jednostki naukowej – czcionka 12 pkt,
- tytuł artykułu w języku polskim i angielskim – czcionka 14 pkt (bold); podtytuły – czcionka 12 pkt (bold),
- do publikacji należy dołączyć słowa kluczowe (3–5) oraz streszczenie nieprzekraczające 15 wierszy napisane w językach polskim i angielskim – czcionka 11 pkt,
- tekst zasadniczy referatu pisany czcionką Times New Roman CE – 12 pkt,
- odstęp między wierszami – 1,5,
- jeżeli referat zawiera tabele (najlepiej wykonane w edytorze Word albo Excel) lub rysunki (preferowany format CorelDraw, Excel, Word), należy dołączyć pliki źródłowe,
- tabele i rysunki powinny być zaopatrzone w kolejne numery, tytuły i źródło,
- przy pisaniu wzorów należy korzystać wyłącznie z edytora równań dla MS WORD,
- preferowane formaty zdjęć: TIFF, JPG (o rozdzielczości minimum 300 dpi),
- w przypadku publikowania prac badawczych układ treści artykułu powinien odpowiadać schematowi: wprowadzenie (ewentualnie cel opracowania), opis wykorzystanych materiałów czy metod, opis badań własnych (omówienie wyników badań), wnioski (podsumowanie), wykaz piśmiennictwa.

2. Odsyłaczami do literatury zamieszczonymi w tekście publikacji są przypisy dolne, które muszą mieć numerację ciągłą w obrębie całego artykułu. Odsyłaczami przypisów dolnych są cyfry arabskie złożone w indeksie górnym, np. (2).

3. Zapis cytowanej pozycji bibliograficznej powinien zawierać: inicjał imienia i nazwisko autora, tytuł dzieła, miejsce i rok wydania, numer strony, której dotyczy przypis; w przypadku pracy zbiorowej: tytuł dzieła, inicjał imienia i nazwisko redaktora, miejsce i rok wydania; w przypadku pracy będącej częścią większej całości – także jej tytuł, inicjał imienia

i nazwisko redaktora. Źródła internetowe oraz akty prawne należy podawać także jako przypis dolny.

4. W wykazie piśmiennictwa zamieszczonym w kolejności alfabetycznej na końcu publikacji należy podać kolejno: nazwisko autora/ów i pierwszą literę imienia, rok wydania, tytuł pracy (czcionka italic), wydawnictwo oraz miejsce wydania. Przykłady:

- **wydawnictwa książkowe:** Janowiec A., *Ziemniaki skrobiowe – rola w województwie podlaskim*. Wydawnictwo WSA, Łomża 2010.

- **prace zbiorowe:** Górczewski R., (red.) *Przemieszczenie trawieńca*. Wydawnictwo PWN, Warszawa 2007.

- **czasopisma:** Staszewski M., Getek I. *Specyfika żywienia krów o wysokiej wydajności.*, Zeszyty Naukowe WSA, Wydawnictwo WSA nr 37, Łomża 2007.

- **strony internetowe:** [www.4lomza.pl](http://www.4lomza.pl). 1.12.2009 r.

- **akty prawne:** Ustawa z dnia 27 lipca 2002 r. o zmianie ustawy o szkolnictwie wyższym oraz ustawy o wyższych szkołach zawodowych. Dz.U. z 2002 r. Nr 150, poz. 1239.

**UWAGA:** teksty niespełniające powyższych wymagań zostaną zwrócone Autorowi

## **Procedura recenzowania prac naukowych nadsyłanych do publikacji w Zeszytach Naukowych Wyższej Szkoły Agrobiznesu**

Procedura recenzowania artykułów w Zeszytach Naukowych WSA jest zgodna z zaleceniami Ministerstwa Nauki i Szkolnictwa Wyższego oraz dobrymi praktykami w procedurach recenzyjnych w nauce \*.

Przekazanie publikacji do Redakcji Wydawnictwa WSA jest jednoznaczne z wyrażeniem przez Autora/Autorów zgody na wszczęcie procedury recenzji artykułu. Autor/Autorzy przesyłają utwór wraz z wypełnionym oświadczeniem, którego wzór znajduje się na stronie internetowej WSA. Nadesłane materiały są poddawane wstępnej ocenie formalnej przez Naukową Radę Redakcyjną WSA, zwaną dalej Radą, zwłaszcza pod kątem ich zgodności z wymaganiami wydawniczymi opracowanymi i publikowanymi przez Wyższą Szkołę Agrobiznesu, jak również obszarami tematycznymi ZN. Następnie artykuły są recenzowane przez dwóch niezależnych recenzentów, którzy nie są członkami Rady, posiadających co najmniej stopień naukowy doktora. Nadesłane artykuły nie są nigdy wysyłane do recenzentów z tej samej placówki, w której zatrudniony jest Autor/Autorzy. Prace recenzowane są anonimowo. Autorzy nie znają nazwisk recenzentów. Artykułowi nadawany jest numer redakcyjny, identyfikujący go na dalszych etapach procesu wydawniczego. W innych przypadkach recenzent podpisuje deklarację o niewystępowaniu konfliktu interesów – formularz jest publikowany na stronie Internetowej WSA. Autor każdorazowo jest informowany z zachowaniem zasady poufności recenzji o wyniku procedury recenzenckiej, zakończonej kategorią wnioskiem o dopuszczeniu bądź odrzuceniu publikacji do druku. W sytuacjach spornych powoływany jest kolejny recenzent.

Lista recenzentów współpracujących z wydawnictwem publikowana jest w każdym numerze czasopisma oraz na stronie Internetowej WSA.

\* Dobre Praktyki w procedurach recenzyjnych w nauce. Zespół do Spraw Etyki w Nauce. Ministerstwo Nauki i Szkolnictwa Wyższego. Warszawa 2011.

Załącznik nr 1

miejsowość, data.....,

**Oświadczenie Autora/Autorów**

Zwracam się z uprzejmą prośbą o przyjęcie do Redakcji Wydawnictwa WSA i ogłoszenie drukiem publikacji/pracy pt.

.....  
 .....  
 autorstwa:

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 .....  
 Równocześnie oświadczam(y), że publikacja nie została wydana w przeszłości drukiem i/lub w wersji elektronicznej w innym czasopiśmie, nie została zgłoszona do innego czasopisma, nie znajduje się w recenzji innej Redakcji, nie narusza patentów, praw autorskich i praw pokrewnych oraz innych zastrzeżonych praw osób trzecich, a także że wszyscy wymienieni Autorzy pracy przeczytali ją i zaakceptowali skierowanie jej do druku.

**Przeciwdziałanie nierzetelności naukowej - „ghostwriting” oraz „guest authorship”;**

· źródło finansowania publikacji:.....

· podmioty, które przyczyniły się do powstania publikacji i ich udział:

· wkład Autora/Autorów w powstanie publikacji (szczegółowy opis z określeniem ich afiliacji):

**Imię i nazwisko**

**podpis**

**data**

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**Imię, nazwisko, adres, telefon, e-mail, osoby odpowiedzialnej za wysłanie niniejszego oświadczenia (głównego Autora pracy):**

.....  
 .....  
 .....

Załącznik nr 2.

## DEKLARACJA KONFLIKTU INTERESÓW

Konflikt interesów\* ma miejsce wtedy, gdy recenzent ma powiązania, relacje lub zależności przynajmniej z jednym z autorów pracy, takie jak na przykład zależności finansowe (poprzez zatrudnienie czy honoraria), bezpośrednie lub za pośrednictwem najbliższej rodziny.

**Tytuł pracy**.....

**Data**.....

### **Konflikt nie występuje**

Recenzent oświadcza, że nie ma powiązań ani innych finansowych zależności wobec Autora/Autorów:

.....

Podpis recenzenta

**\* Recenzent oświadcza, że występuje następujący konflikt interesów**

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Podpis recenzenta:

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