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INTRODUCTION

Dear colleagues, authors and readers of the Scientific Journal of Polonia University (PNAP – *Periodyk Naukowy Akademii Polonijnej*)!

Congratulation on the release of a new PNAP 45 (2021)!

In this issue we are presenting scientific articles, which deal with urgent problems of language, culture, communication, and education, as well as Sociology and Political Science, issues on health and environment, technology, creativity and implementation, Law and Public Administration.

The collected papers and their objectives represent researches in linguistics, intercultural communication and education. Among them: actants of the thematic group of predicates of irrational state acquisition in Ukrainian, English and German, different types of intertextual relationships in Orhan Pamuk novel “The Red-haired Woman”, communication tactics of different dialogues in English content in literary journalism. The authors in the sphere of education elicit pedagogical aspects of current trends in nursing education: fundamentals of stimulating tutoring, interactive methods as means of ensuring continuous professional development.

PNAP also highlights the current problems of modern society, such as typological classification of supreme council of justice and related bodies in foreign countries, legal framework for strategic and critical infrastructure methodology of research of temporal evaluation notions in civil law, multidimensional analysis of the political contestation of Nord Stream Project, legal forms of state participation in civil relations, risks of land market functioning and their preventive measures, leadership development in leading countries of western and northern Europe.

Authors in the sphere of technology, creativity and implementation elicit distribution regularities of the procedure execution time of the algorithm of tower controller’s actions using girt networks and mathematical modeling of finding effective algorithms of transport company functioning.

Health issues are focused on X-ray fluorescence analysis of waste electrical and electronic equipment, mechanisms of influence of unbalanced feeding on morpho-functional state of liver in pregnant rats and personalized characteristics of morphometric and functional parameters of retina in arterial hypertension according to optical coherence tomography-angiography data.

We thank our authors, who have already sent their scientific articles to PNAP, and those, who are going to submit their research results to our journal. We would also like to express our particular gratitude to all the members of the Editorial Board, to the reviewers, and to those who kindly accepted our proposal to work together and contribute to the creation of PNAP.

Marta Hamala-Ręczmień

LANGUAGE, CULTURE, COMMUNICATION

METHODICAL WORK IN THE COLLEGE OF ART ORIENTATION

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Summary

The presented Article is devoted to the problem of organization of methodical work in the college of art orientation. The process of radical changes in modern education requires reconstruction and improvement not only the content of education and upbringing, but also approaches to the organization of methodical work. Their application is impossible without competent instructors, who are able to adapt different teaching methods to new conditions. Instructor's excellence is formed through constant and systematic professional self-improvement and self-education. Methodical work in the college is a holistic system based on the achievements of advanced pedagogical experience and on a specific analysis of educational processes. The Article in the theoretical aspect reveals the forms and methods that can be used in the organization of methodical work of the college in relation to instructors. The effectiveness of methodical work in the college depends on the organization of its system, continuity, purposefulness, consistency, organic connection with the educational and upbringing processes of the college. It should be emphasized that methodical work in the college of art orientation is an integral part of the educational process, as a result of which professional communication plays an important role in the formation of relationships between instructors. Questions to the organization and improvement of methodical work have always been one of the priorities in education.

Keywords: college, instructor, methodical work, educational institution.

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1. Introduction

The process of long-term reform of the education system in Ukraine is caused by social, political, economic and cultural changes, therefore, the development of new approaches to the organization of methodical work in the college of art orientation aimed at developing the skills of professional communication of instructors, becomes especially important. In the conditions of further changes of education reform in Ukraine, the main feature of methodical work of college becomes maintenance of realization of new priorities, the assistance to instructors in

achieving a high level of professional activity, scientific and methodological support, taking into account innovative processes.

Methodical work has a holistic system of actions and activities aimed at improving the skills and professional excellence of each instructor, the development of creative potential of the teaching staff of the educational institution, achieving positive results of the educational process. It should be based on modern achievements of psychological and pedagogical science, taking into account the experience of instructors and a specific analysis of the results of educational processes. Participation in methodical work should be a professional duty of every instructor (*Ministry of Education and Science of Ukraine, 2002*).

2. General aspects of the organization of methodical work

The rapid development of technology in society requires instructors to improve the forms and methods of conducting classes in accordance with both theoretical and practical training. Requirements for instructors are constantly increasing and growing, and the most important means of pedagogical excellence is methodical work as an important component in relation to college instructors.

General provisions of the theory and practice of methodical work in educational institutions of different levels of accreditation are comprehensively covered in the scientific achievements of domestic scientists N.P. Volkova, N.V. Vasylenko, N.Yu. Samoilenko, S.H. Mishchenko, R.O. Sabadyshyn, O.Yu. Shchupak, M. P. Drach, O.Ye. Smolinska, M. I. Mykhniuk, H.V. Kozachenko, A. V. Opolska, T.H. Pavlysha, I.I. Kozynets, L.I. Biziuk, S.I. Posokhov, Ye.I. Horban, A.V. Nikitin.

Peculiarities of professional activity according to methodical work are considered in scientific works of K.S. Burova, O.V. Volkova, T.K. Hradusova, T.O. Zhukova, N.V. Solova, S.V. Yehorenkova, O.Yu. Ratieva, O.M. Morhun, I.P. Chastokolenko, A.O. Davydenko, V.V. Permiakov, Zh.A. Zhunisbekova, M.A. Kerimbekova, H.A. Mombiieva, Sh.K. Rezhametova, S.L. Lohinova, O.O. Shakuto, N.H. Sannykova, O. Yu. Hyrba, N.M. Zaborska, M.M. Amrenova.

A necessary condition for the organization of methodical work is a system of such components that are necessary for the implementation of a specific goal and objectives. Given the peculiarities of the pedagogical activities of college instructors, it should be noted that a prerequisite for the growth of their pedagogical excellence is methodical work.

The pedagogical literature contains many definitions and approaches to the concept of “methodical work”.

According to N.P. Volkova “methodical work is a specially organized activity of the teaching staff, which creates conditions for improving the excellence of the instructor” (*Volkova, 2007*).

Researcher T.V. Babenko believes that methodical work is an important component of postgraduate pedagogical education, which has a holistic system of actions and activities aimed at improving the skills and professional excellence of each instructor, the development of creative potential of teaching staff, achieving positive results of the educational process (*Babenko, 2016*).

Based on the analysis of the essence of the concept of “methodical work” K.S. Burov gives the following definition: “Methodical work is a systematic collective and individual activity of instructors aimed at improving their scientific and theoretical, general and cultural level, psychological and pedagogical training and professional excellence” (*Burov, 2007*).

Scientist M.M. Fitsula in his study defines methodical work as a purposeful activity of the higher educational institution to provide psychological, pedagogical and methodological training of instructors aimed at improving the effectiveness of education, achieving skills in teaching disciplines, conducting various forms of classroom and extracurricular work with students (Fitsula, 2006).

Under the methodical work in a modern educational institution I.O. Stepanets proposes to understand the system of special forms, methods and tools aimed at deepening the professional competence of the instructor, ensuring his professional self-realization, improving the level and quality of educational process, improving its methodological support, creates conditions for further self-education of instructors (Stepanets, 2014).

With the considered scientific views on methodical work we can note that methodical work is a work that contributes to the improvement of professional training in college, encourages each instructor to improve his professional level. It contributes to the mutual enrichment of instructors with pedagogical findings, allows improving pedagogical excellence, and maintains the spirit of creativity in the teaching staff, the desire to search, as evidenced by the approaches of scientists to the definition of “methodical work”.

According to L.V. Motorna, the main activities of methodical work are improving the professional excellence and creative potential of instructors, the development of innovative activities of the teaching staff (Motorna, 2013).

N.P. Volkova in the textbook “Pedagogy” states that the instructor “always learns, develops, seeks new methods of teaching his subject, attracts students to intellectual cooperation and co-creation, open to sharing experiences with colleagues” (Volkova, 2007).

Taking as a basis scientific developments in the field of pedagogy, which are substantiated by N.P. Volkova, we can say that methodical work in the college should be an important factor in improving the professional level of instructors and aimed at effective formation of teaching staff to improve their professional activities.

And one of the priority areas for improving the professional activities of college instructors is to take into account their professional activities, which requires updating new forms and methods at the present stage, willingness to communicate, pedagogical interaction and professional communication in the teaching staff.

Professional communication is present in all types of educational activities: cognitive, labor, creative. In particular, it can be carried out as a subject of subjective interaction with instructors in accordance with the methodological work. According to Ye.V. Korotaieva, “pedagogical interaction can be described as optimal, constructive, full-fledged if the communication of the subjects of interaction includes communication based on the exchange of information and a well-thought-out organization of joint activities that take into account the individual capabilities of the activities of the subjects, and the achievement of mutual understanding based on emotional acceptance of each other” (Korotaieva, 2016).

Ukrainian scientists H.V. Lokarieva and N.V. Stadnichenko emphasize in the monograph that “communication is inherent in the human community and each of its participants in the process of this mutual activity both receives and gives. This return does not mean loss, it leads to the development of personality, gives it experience, enriches it culturally. In modern society, the need for communication has led to the desire of man to rethink the accumulated practical experience of creative personality, its self-realization, personal and professional development and development of social relations in the direction of increased attention to specific needs of the individual, to establish humanistic moral and value orientations” (Lokarieva et al., 2019).

The purpose of methodical work of the college of art orientation is to increase and improve the professional excellence of instructors, the implementation of a set of measures aimed at creating conditions for effective development of the college, ensuring the quality of the educational process, effective use of modern educational innovative technologies.

The main functions of methodical work in the college of art orientation are:

- compensatory (elimination of gaps in the professional activities of instructors);
- adaptive (adaptation of instructors to work in new conditions);
- developing (development of pedagogical creativity in instructors).

The tasks of methodical work in the college of art orientation are:

- study, generalization and dissemination of advanced pedagogical experience;
- providing systematic and effective assistance to instructors in improving the organization of training and education of students;
- diagnostics and expert procedures for objective analysis of the results of pedagogical work of instructors;
- objective assessment of the effectiveness of management of methodical work and the selection of its optimal structure;
- improving the methodological and instructional competence of instructors;
- providing methodological support for innovative activities of instructors;
- directing the activities of instructors to the creative search for effective ways to implement educational and professional programs;
- introduction of modern pedagogical technologies aimed at improving the quality of training of students, their competitiveness in the labor market;
- ensuring the participation of instructors in competitive events of different levels.

In addition to the purpose, functions and tasks of methodical work presented in relation to the college of art orientation, the main directions of methodical work are also identified:

1. Organizational and methodical work (identification, discussion and determination of activities for the development of the educational process in the college and the organization and planning of methodical work);

2. Work with pedagogical staff (ensuring continuity of self-education of instructors through the organization of the system of advanced training and professional excellence);

3. Scientific-methodical and experimental activity (organization of creative research activity of instructors within the framework of experimental work on active introduction of modern pedagogical and information technologies into the educational process; stimulation of creative activity of instructors, which promotes successful realization of the only methodical problem of the college);

4. Information and methodical work (development of information and educational environment of the college, creation of a database of pedagogical scientific and methodical information on the achievements of science and practice, including from the experience of the teaching staff of the college);

5. Measures of the educational process (development of professional interest, disclosure of creative potential of instructors and students);

6. Analytical and control and correctional work (formation of a system of analytical work in the main areas of the college: the organization of the educational process, the quality of instruction, the organization of educational work, the effectiveness of methodical work);

7. Organization of social partnership (development of constructive relations between the college and government agencies: Ministry of Education and Science of Ukraine, State Educational Institution “Educational and Methodological Center for Education Quality”, Institute for

Modernization of Educational Content, Communal institution “Dnipro Academy of Continuing Education” of the Dnipro Regional Council”), Scientific and Methodological Center for Higher and Professional Higher Education, Ministry of Culture and Information Policy of Ukraine, Department of Culture, Tourism, Nationalities and Religions of the Dnipropetrovsk Regional State Administration, National Academy of Management of Culture and Arts, State Scientific and Methodological Center for Cultural and Artistic Education).

When building a system of methodical work it is necessary to pay attention to the organization of the following areas:

- in relation to specific instructors, where the main task is to form an individual, highly effective system of professional teaching;
- to the teaching staff of the college methodical work solves the problem of forming a team of like-minded people;
- to the general system of continuing education, which provides a creative understanding of the development of educational policy, the introduction of scientific achievements and best practices in the professional activities of the college.

Summarizing the above, in the context of our study we define that the methodical work of the college of art orientation is one of the important components of educational activities of the college, which is a set of activities based on the achievements of psychological and pedagogical science and best practices aimed at professional development and creative potential of instructors.

3. Application of normative and local documents in the methodical work

In the college of art orientation, methodical work is carried out in accordance with the following regulations of Ukraine: the laws of Ukraine “On Education” (2017), “On Higher Education” (2014), “On Complete General Secondary Education” (2020), “On Professional (Vocational) Education” (1998), “On Professional Higher Education” (2019), “On Culture” (2011), “On Innovative Activity” (2002); Decrees of the President of Ukraine: “On measures to ensure the priority development of education in Ukraine” (2010), “On measures to solve current problems of disability persons” (2011); Order of the Ministry of Education and Science of Ukraine: “On the Concept of Inclusive Education Development” (2010); letters of the Ministry of Education and Science of Ukraine: “On recommendations for the organization and conduct of methodological work with instructors in the system of postgraduate pedagogical education” (2002), “On the organization of online learning” (2020); Regulations of the Ministry of Education and Science of Ukraine: “On Regulations on Online Learning” (2013), “Standard regulations on Certification of Instructors” (2010); Regulations of the Ministry of Culture of Ukraine: “On Regulations on Certification of Employees of Enterprises, Institutions, Organizations and Establishments in the field of Culture” (2007); Order of the Ministry of Culture of Ukraine: “On Regulations on Certification of Teaching Staff of Educational Institutions (Establishments)” (2018).

To improve the methodological work in the college of art orientation, local internal documents have been developed for use. The list of documentation according to which the activity of the Methodical Service of the college of art orientation is carried out consists of the following:

1. Order on creation of Methodical Associations or creative groups and other associations of instructors;
2. Order on appointment to the position of the head of the Methodical Association, the head of the creative group;

3. Provisions on the Methodological Association or creative group;
4. Analysis of work for the last year;
5. Recommendations on the general topic of the methodical work, its purpose, priority directions and tasks for the new academic year;
6. Work Plan for the year and plan-grid of methodical work for each month;
7. Database of instructors: quantitative and qualitative composition (age, education, specialty that teaches the subject, general and pedagogical experience, qualification category, awards, titles);
8. Information on the topics of self-education of instructors of the Methodological Association;
9. Long-term Plan for attestation of instructors of Cycle Commissions;
10. Schedule of certification of instructors of Cycle Commissions for the current year;
11. Reports of instructors on professional development;
12. Schedule of open classes by instructors, presentation of methodological developments;
13. Minutes of Meetings of the Methodical Council and Methodical Associations;
14. A set of curricula of disciplines;
15. Thematic Planning for each subject (discipline), information about the educational and Methodological Association of the subject;
16. Matrix of the volume of innovations for each instructor;
17. Questionnaires and schemes of lesson analysis;
18. Plan of work with young and newly arrived instructors;
19. Plan for the subject week (month), methodical materials.
20. Journal of meetings with the Deputy Director for Academic Affairs, meetings with instructors, visits to classes of instructors, visits to extracurricular activities.

Thus, methodical work should contribute to the growth of excellence of college instructors; should improve the quality of educational processes. Given the above, we can conclude that methodical work is an important component in the college of art orientation and affects the formation and development of interpersonal communication skills of instructors.

4. Components of the organization of the methodical work in college

An important component of the methodical work in the college is the organization of a system of interrelated activities aimed at improving the professional competence of instructors in organizing the educational process, developing the creative potential of instructors, improving the quality of professional education of students.

The management of methodical work in the educational institution is carried out by the Deputy Director for Academic Affairs, the Head of the Methodical Office and Teaching Methodology Experts of the college.

The organization of methodical work, as well as any process in college, is characterized by the following components of the management cycle: motivation, goal setting, planning, organization, control, analysis.

Motivation is a creation of external and internal motivations among instructors for actions aimed at effectively achieving the goals of methodical work in the college.

Goal-setting is aimed at practical understanding of their professional activities in setting goals and achieving them.

Planning is the process of preparing decisions on how the goals of methodical work in the college should be achieved and what teaching staff should do to achieve these goals.

Organization indicates the streamlining of instructors' activities on methodological work in order to implement plans and achieve goals.

Control is the process of ensuring how and to what extent the goals are actually achieved.

Analysis shows the level of efficiency of college instructors and the development of conceptual approaches in the construction of methodological work.

As a result of the organization of methodical work, at interaction of the teaching methodology expert and instructors of the college, the following classification of methods is most widespread:

1. By way of applying information: verbal (oral, printed), visual (illustration methods and demonstration method), practical (workshops, trainings).

2. By the degree of independence in the acquisition of knowledge: reproductive, part-search, research, exploratory.

3. By the method of obtaining knowledge: explanatory and illustrated, programmable, problem, model.

At the same time, new, different from traditional, interactive methods of work with the teaching staff of the college are increasingly used: they provide an opportunity to simultaneously solve educational and cognitive, communicative and orientation tasks due to the fact that:

– allow organizing educational and communicative space;

– promote the acquisition of professional knowledge, skills and abilities in communication.

The main forms of methodical work in the college are individual, collective, group and non-traditional. Hereafter, we will consider what forms of organization of methodical work can be characteristic for introduction in college of art orientation.

The individual forms of organization of methodical work include self-education, internships, mentoring, individual consultations, mutual visits, certification.

Collective forms of organization of methodical work include Pedagogical Council, Small Pedagogical Council, meetings of Cycle Commissions, Methodical Association of curators of educational groups, Pedagogical and Methodological General Training, scientific and practical conferences, competitions of pedagogical excellence, seminars and practicum, thematic seminars, weeks on a specialty, methodical weeks.

Group forms of organization of methodical work are carried out in creative groups, on educational platforms, round table discussions, discussions, business games, questionnaires.

Non-traditional forms of organization of methodical work take place as a methodical relay (opening of optional classes and special courses, premiere of creative search, week of author's lessons and classes), week of non-standard lessons and classes, pedagogical Olympiad, psychological and pedagogical tournament, psychological and pedagogical brainstorming, methods ring, exhibition of pedagogical creativity, pedagogical council.

The above-mentioned forms of organization of methodical work are promoted by process of communication of instructors as a result of which skills to professional communication of instructors develop, and it promotes their methodical growth and self-improvement.

Based on the scientific research of S.H. Molchanov, the teaching methodology experts of the college of art orientation introduced organizational forms of methodical work by classification, which are divided into administrative and didactic forms:

I. Administrative forms:

1) conference of instructors on research problems;

2) association of instructors in academic disciplines;

3) scientific and methodical commission on the educational branch;

4) methodical association of the educational process;

5) methodical section on academic disciplines;

6) individual professional pedagogical self-education.

II. Didactic forms:

1) problem seminars;

2) problem-project seminars;

3) organizational and active games;

4) reproductive-heuristic (pedagogical readings, scientific-practical conferences);

5) heuristic-productive: festivals of pedagogical ideas, socio-pedagogical initiatives, projects; competitions of professional excellence;

6) productive: scientific conferences; theoretical or methodological seminars, advanced training according to an individual plan; participation in temporary creative teams;

7) reproductive: externship; practicum; scientific and practical seminars; pedagogical workshops; seminars and practicum; trainings (Molchanov, 2001).

At the same time, methodical work with instructors in the college of art orientation is carried out both frontally and individually.

Individual forms of work: mentoring, individual assistance of the Deputy Director for Academic Affairs, Head of the Cycle Commission, Teaching Methodology Expert, Social Teacher, Practical Psychologist, self-education of teachers, construction of individual plans of self-development of instructors.

Frontal: seminar and practicum, pedagogical councils, consultations, brainstorming, reviews and competitions, viewing of open classes, business games, discussion club, creative workshops, round table discussion, trainings, etc.

Educational and upbringing activities of methodical work in the college of art orientation are regulated by the following associations of pedagogical workers: Pedagogical Council of the College, Small Pedagogical Council, Methodical Council, Methodical Associations, Cycle Commissions, school "Young Instructor".

Pedagogical Council is a collegial governing body that is a professional educational organization in the college. It provides the development and improvement of educational and upbringing activities, improving professional excellence and creative growth of instructors.

Every instructor engaged in educational activities (administration, instructors, accompansists, support staff), from the moment of hiring until the termination of the contract is a member of the Pedagogical Council.

The subject of Pedagogical Councils is developed by a group of teaching methodology experts and is included in the annual Work Plan of the college. The preparation of the meetings of the Pedagogical Council is carried out by permanent and temporary social and professional associations of instructors, which perform in the period of preparation of the Pedagogical Council the powers assigned to them by the representatives of the College Administration. The moderator has the right to involve any employee of the college to hold a Pedagogical Council.

Pedagogical Councils are universal, where several issues related to the activities of the college are considered, and specialized, for example, a Small Pedagogical Council, where some issues under one topic are submitted for consideration.

The Methodical Council is a pedagogical public collegial body of internal management, which promotes the formation of a creative approach to pedagogical activity. The Methodical Council promotes the decision of psychological and pedagogical problems of activity and promotes complex development of educational system of college.

The Methodical Council of the college of art orientation is guided in its activities by the "Regulations on the Methodical Council", in addition, the Methodical Council contributes to the provision of educational and upbringing processes.

The Methodical Council is an advisory body on the organization of methodical work in the college; it coordinates the work of substructures of the methodical service, aimed at developing methodological support of the educational process and implementation of innovations, methods, techniques in the professional activities of instructors.

The following groups of Methodical Councils are distinguished in the practice of pedagogical activity of the college of art orientation:

1. Traditional (authoritarian, dogmatic), for example, differ mainly in the use of verbal methods, the traditional nature of the content, the authoritarian style of communication between the administration and instructors.

2. Modern intensified (modernized, modified), for example, workshop, conference, creative report.

3. Non-traditional (alternative), for example, a business game in the form of a collective creative work, a “round table discussion”, a debate, discussion, presentation, auction, festival.

The Methodological Association is a professional association (group) of instructors, specialists, scientists, administrative and other employees, created to jointly solve complex problems.

Traditionally, Methodological Associations of instructors of one or more similar profiles of activity are created. Instructors therein are engaged, first of all, in methodical work: development of methods on educational subjects (disciplines), discussion of various receptions, methods, forms, techniques, technologies of training and education on actual subjects.

The main forms of work of the Methodological Association are:

- meetings at which members of the Methodological Association speak;
- discussion of current issues;
- review of novelties of scientific and methodical literature;
- preparation, holding of demonstrations, competitions, performances;
- methodical training of instructors;
- providing methodological assistance to instructors.

The Cycle Commission is an association of instructors of a number of related disciplines, taking into account the structure of the curriculum and areas of training of students.

The purpose of the Cycle Commissions is to provide a process for organizational and methodological support of the implementation of educational and professional programs, as well as improving the professional level of instructors.

The School “Young Instructor” is a structural element of the college’s methodological service system and a subject of internal management in the college. This School is a form of training a young specialist in the period of entering the position and his professional development. The purpose of the school is to quickly adapt young instructors to the conditions of work in the college, their professional development and further development.

The effectiveness of methodical work depends on its organizational system, continuity, purposefulness, consistency, organic connection with the educational process in the educational space of the college.

Criteria for evaluating the results of methodical work in the college consist of the following:

- increasing the satisfaction of instructors with their activities;
- positive psychological and pedagogical climate in the college;
- high interest of instructors in creativity and innovation;
- mastering modern methods of teaching and education;
- positive dynamics of the quality of education and upbringing of students;

- high level of professional activity of instructors;
- timely dissemination of advanced pedagogical experience;
- qualitatively organized system of advanced training;
- timeliness of advanced training.

The generalizing algorithm of the organization of methodical activity includes:

- preparation of educational and methodical documentation;
- activity of Pedagogical Council and Methodical Associations;
- staffing problem groups with instructors, who ensure the development of advanced pedagogical experience in the problem and its promotion among all instructors;
- organization of self-education, conducting theoretical, practical and methodical seminars;
- work of college instructors on the methodological theme of the college;
- demonstration of work experience through open events, exhibitions of works by instructors and students;
- personal example of the college administration;
- collection and processing of the received information (by means of various diagnostic techniques);
- prompt practical assistance to the College Administration and Methodological Associations of Instructors working on the chosen topic;
- summarizing each stage of work and setting new short and long-term prospects;
- adjustment of the educational process in the course of various methodical classes in the system of methodical work;
- encouraging creative workers, creating an atmosphere of friendliness, cooperation and mutual assistance.

Thus, methodical work occupies a special place in the system of functioning of the college of art orientation, as, above all, contributes to the activation of instructors, the development of their professional activities and, accordingly, improve and develop professional communication skills. And all forms of methodical work are aimed at raising and improving the skills and abilities of instructors and the development of their creative potential.

5. Conclusions

The organization of methodical work in the college covers a number of important functions: study, analysis of the status of work, taking into account the new social order, choice of goals and specific tasks, planning content, forms and methods, ways and means to achieve goals, incentives, providing specific assistance to instructors based on the results of diagnosis, verification of performance, analysis and evaluation of results.

The question of the organization of methodical work in the college of art orientation is currently relevant and in demand because there are new requirements for the organization of the educational process and further radical changes in the education system.

The methodical work includes almost all types of activities of the college staff, its structures, each instructor, which are aimed at improving the quality of training of students, improving the educational process and its control, training of employees.

The system of methodical work formed in college is characterized by flexibility, has multilevel character and covers all components of educational and upbringing processes. It contributes to the rapid formation and growth of pedagogical professionalism, excellence and methodological competence of instructors. It should also be emphasized that the college has

developed a system of methodological work in which there are resources for innovation and application of educational innovations.

Thus, given the above, it can be stated that instructors in the process of functioning of methodical work in modern communication systems these days. Instructors need to use different channels of transmission and reception of information within their professional activities, and this should be facilitated by the organization of methodical work in the educational environment of the college of art orientation. In the perspective of further scientific research we consider it necessary to investigate the development of skills of professional communication of instructors of colleges of art orientation in the conditions of methodical work.

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DIFFERENT TYPES OF INTERTEXTUAL RELATIONSHIPS IN ORHAN PAMUK'S NOVEL "THE RED-HAIRED WOMAN"

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Summary

The literature of the postmodern era is characterized by a violation of traditional norms of writing. In particular, attention is focused not on the inner and outer worlds of a character, but on the very structure of the work, in the writing process of which the author uses various literary techniques that the reader relies on during the interpretation. Examples of such techniques are metafiction, intertextuality and pluralism. The most common is intertextuality, which means the reference of the author of the novel to literary works written by him or other writers. Thus, the referenced work ceases to belong to the pen of only one author. The novel "*The Red-Haired Woman*", based on the Greek myth called "*King Oedipus*" and the Iranian myth "*Rustem and Sohrab*", is an example. There are many works that examine the intertextual relationships that function in the novel "*The Red-Haired Woman*", but no clear classification has been given yet. The purpose of this article is to systematize the already acquired knowledge and classify the intertextual relations of the novel to provide a better understanding of the structure of the text by the reader. Prospects for further research lie in the analysis of intertextual connections in other novels by Orhan Pamuk or other authors of the postmodern era.

Keywords: postmodernism, Turkish literature, novel, intertextuality, quote, reference, allusion, parody.

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1. Introduction

The term "intertextuality" was first used by the famous Bulgarian and French literary critic Julia Kristeva. According to her, intertextuality lies in the relationship of one text with another text or discourse, in the constant openness of one discourse to another and the ambiguity of the discourse, so it can be used within another discourse (Kristeva, 2013).

Analyzing this term, Turkish scientists M. Karabulut and I. Biricik draw attention to the fact that Julia Kristeva has repeatedly stated that "every text is a mosaic of quotations," and the French philosopher Roland Barthes, supporting this statement, added that there is nothing unsaid on Earth. Even if any text we read seems unique, there is a high probability that the expressions of any other author are used literally or in the form of a transformation with a different meaning within this text (Karabulut and Biricik, 2018: 149).

Intertextuality is observed in many of Orhan Pamuk's novels. In particular, Berna Moran, analyzing the novel "*Kara Kitap*" (Eng.: The Black Book) in her article entitled "*Üstkurmaca Olarak 'Kara Kitap'*" (Eng.: "The Black Book" – an Example of Metafiction) emphasizes that the author's goal was to write a modern novel, based on the characteristics of Eastern culture

and literature. In “*Kara Kitap*” these features are manifested in the form of borrowed from such collections as “*Bin Bir Gece Masalları*” (Eng.: Tales of “The One Thousand and One Nights”) and “*Mantuk Al-Tayr*” (Eng.: Conversation of Birds) framework technique of writing and the motif of road, which is the leading one in the mesnevi “*Hüs-n-ü Aşk*” (Eng.: Beauty and Love) (Akyıldız, 2015: 90).

A significant contribution to the literature was also made by Turkish researchers, who analyzed the functioning of intertextuality in the novel “*The Red-Haired Woman*”. Mustafa Karabulut and Ibrahim Biricik came to the conclusion that the novel has much in common with the myths of “*King Oedipus*” and “*Rustem and Sohrab*”. For example, the main protagonist Cem in the first part of the book, where he allegedly kills his master Mahmud and has relationship with the ex-girlfriend of his biological father Akın, is a prototype of Oedipus, while in the second part having changed the position of child on father he is more reminiscent of Rustem, who, after his intimate relationship with Tahmine, no longer saw her, and therefore did not know about his son's existence. In turn, the Red-haired woman is characterized by the features of the heroines of both myths – Jocasta and Tahmine. In addition, the authors of the article “*Postmodern Romanın “Nasıl”lığı Bağlamında Orhan Pamuk’un “Kırmızı Saçlı Kadın” Romanı*” (Eng.: Orhan Pamuk's Novel “The Red-Haired Woman” in the Context of the “How” of the Postmodern Novel) also mentioned frequent references of Orhan Pamuk to the narratives from the Quran, which is also a sign of intertextuality (Karabulut and Biricik, 2018: 152-153). Intertextual connections have also been examined by Saniye Köker and Metin Balcı.

The above works are an insignificant part of all studies, the subject of which was Orhan Pamuk's novel “*The Red-Haired Woman*”. However, it can be noted that the intertextual connection has not been sufficiently studied. In particular, the examples of intertextual connections in the novel “*The Red-Haired Woman*” were not properly classified. That is why this issue is still relevant. Thus, the task of this research is to determine the types of intertextuality found in the novel “*The Red-Haired Woman*”. During the research such general scientific methods as generalization, deduction and comparison as well as the literary formal method were used.

2. Quote

In our opinion, intertextual relations were most successfully classified by Turkish Professor Kubilay Aktulum. According to the classification they can be divided into 2 groups: interoperable and derivative. Quotations, references, hidden references and allusions belong to the first group, while parody, ironic transformation and retelling (pastiche) take place in the other one (Kitiş, 2017: 3002).

During our research, we came to the conclusion that in the novel the technique of intertextuality occurs in three forms, namely: in the form of quotations, references and allusions, where the number of references exceeds the others.

The group of quotations includes the statements of famous writers used by the author in the preface:

- “*Babasını öldüren, annesiyle yatan, Sphinks’in kördüğümünü çözen Oidipus! Bu üçlü yazgının anlamı nedir? İranlılar arasında yaygın eski bir inanca göre, yüce bir bilge fücürle peydahlanmalıdır.*” (Nietzsche, *Tragedya'nın Doğuşu*) (Pamuk, 2017:7) – Oedipus killed his father, fell in love with his mother and solved the riddle of the sphinx! What do these fatal acts mean? According to a well-known Iranian belief, incest can give birth to a great sage. (Nietzsche, *The Birth of Tragedy*).

- “*Oidipus: Çok eskiden işlenmiş bir suçun izlerini nasıl bulabiliriz?*” (*Sophokles, Kral Oidipus*) (Pamuk, 2017: 7) – Oedipus: How can you find traces of a crime having been done a long time ago? (Sophocles, King Oedipus).

- “*Tıpkı babasız bir oğul gibi, oğulsuz bir babayı da kimse basmaz bağrına.*” (*Firdevsi, Şahname*) (Pamuk, 2017: 7) – No one will embrace a son who has no father or a father who has no son. (Ferdowsi, Shahname).

Seeing these quotes at the beginning of the novel, the reader can guess what will be discussed later. If in the first and third cases the writers touch on the relationship of parents with children, in the second – there is a hint of a long search, the purpose of which in the myths “*King Oedipus*” and “*Rustem and Sohrab*” is to find a father, while in the novel it is a search for inner peace. In addition to the above quotations, the novel also contains a quote from the Quran, which master Mahmud quotes during a conversation with Cem: “*evlerinizi yüksek yerlere yapınız*” (Pamuk, 2017: 31) – build homes at height. However, even the author himself by Cem's thoughts confirms the fact that this expression and other stories of master Mahmud are not quite true, but rather interpreted at his own discretion: “*Ama Mahmud Usta, şurası burası değişmiş bu hikayeleri bir dervişten işitmiş, bu kahvede dinlemiş, hatta kendi yaşamış gibi anlatır, sonra birden çok gerçekçi bir hatıraya çevirirdi.*” (Pamuk, 2017: 33) – However, master Mahmud told these perverted stories as if he had heard them from some dervish, in a café or even experienced them himself. Then he suddenly turned them into his own memories. (Pamuk, 2017: 154).

3. Allusion

There are very few allusions in the novel. In particular, master Mahmud, after the story of the Prophet Joseph and his brothers, says the following: “*Bir baba adil olmalıdır... dil olmayan baba evladını kör eder.*” (Pamuk, 2017: 35) – Every father should be fair... an unjust father can blind his own child. It is difficult to say whether there is a connection between this statement and the story. It is known that after the Prophet was thrown into the pit by his brothers, he was rescued and in the future he became the head of the Egyptian state (*İslam Ansiklopedisi*). That is, the Prophet Joseph was not blinded. However, the content of the above sentences is suitable for the myth “*King Oedipus*”, which was taken as the basis of the novel. King Laius, in order to save his own life, sends his son to the forest to feed on predators, thus committing injustice and causing his son to become blind at the end of the myth. Due to the fact that these sentences do not contain the title or the author of the work, it is not a reference, but an allusion that serves as a hint that can be solved only by those who are already acquainted with the myth. Another example of allusion is the following words of Gülcihan that take place in the third part of the novel: “*Bizimkilerin arasında kalınca, tıpkı Osmanlı zamanında İran'la savaşa gidip hiç geri dönmeyen sipahilerin karılarına yapıldığı gibi bir süre sonra küçük kardeş ile evlendim.*” (Pamuk, 2017: 176) – Staying with us, I, as well as the wives of heavy cavalrymen who went to war in Iran during the times of Ottoman Empire and did not return, married the younger brother. In this case, Orhan Pamuk reminds the reader of his other novel, “*Benim Adım Kırmızı*” (Eng.: My Name Is Red), in which Şeküre marries the brother of a man who has not returned from Iran. Metin Balcı claims that Orhan Pamuk uses this technique in almost all of his works (Balcı, 2019: 314).

4. References

The references found in Orhan Pamuk's novel “*The Red-Haired Woman*” can be divided into 2 groups: those related to the myths “*King Oedipus*” and “*Rustem and Sohrab*” and those

that have nothing to do with them. The first group includes references to the story of the Prophet Joseph and his brothers (Pamuk, 2017: 35), Shehzade and Azrael (Pamuk, 2017: 42-43), St. Ibrahim (Pamuk, 2017: 65), the myths “King Oedipus” (Pamuk, 2017: 70) and “Rustem and Sohrab” (Pamuk, 2017: 109), Shakespeare’s play “Hamlet” (Pamuk, 2017: 64), Ferdowsi’s epic “Shahname” (Pamuk, 2017: 106), K.A. Wittfogel’s monograph “Oriental Despotism” (Pamuk, 2017: 130), Dostoyevsky’s novel “The Karamazov Brothers” (Pamuk, 2017: 98), the work of Z. Freud “Dostoyevsky and Parricide” (Pamuk, 2017: 98) and the Geneva philosopher Jean-Jacques Rousseau (Pamuk, 2017: 167). Interestingly, the main motive that unites the legend of Shehzade and Azrael and the myths “King Oedipus” and “Rustem and Sohrab” is not the relationship of father and son, which is observed in other works, but the motive of the game of fate, which can not be avoided. In particular, Shehzade's death had already been predicted by higher powers. Whereas the plague in Thebes was God's punishment of its inhabitants in response to the crime of paternal murder committed by King Oedipus. In turn, in the novel “The Red-haired Woman” the protagonist Cem faces the same fate that befell the master Mahmud: falling into the same well. The K.A. Wittfogel's monograph called “Oriental Despotism” is not about family relations, but about the authoritarian regime of government, thanks to which Asian society was able to overcome such natural phenomena as floods and drought. The leadership was in the hands of a single person who did not feel sorry for those who went against it (Pamuk, 2017: 132). In the novel, Enver mentions the name of the Geneva philosopher in a conversation with his father: “Modernliğin Fransız mucidi Jean-Jacques Rousseau bunu çok iyi bildiği için dört tane evladını modern olsunlar diye bile bile terk etmiş, onlara babalık etmemiştir. Rousseau çocuklarını merak bile etmemiş, bir kere de aramamıştır. Sen de beni modern olayım diye mi terk ettin?” (Pamuk, 2017: 167) – The founder of French modernism, Jean-Jacques Rousseau, deliberately left his four children to become modern, he did not become their father. Rousseau didn't even care about them, never called. Did you also leave me to grow up modern? However, it is known that Rousseau had not four, but five children from the maid Therese Levasseur, whom he gave to the shelter, explaining it by endless escapes and a poor life. Many wondered how Rousseau was able to write a book about raising children by giving up his own. When one of the countesses directly reproached him for this, he replied: “Madam, nature brings food to all, but your condition of the rich takes away the bread of my children” (Ukrayina Inkognita).

The second group of references includes Jules Verne's novel “Journey to the Center of the Earth” (Pamuk, 2017: 11), the hero of cartoons and films Aladdin, writer Edgar Allan Poe (Pamuk, 2017: 11), the story of Ferhat and Shirin (Pamuk, 2017: 40), Edmond Rostand's play “Cyrano de Bergerac” (Pamuk, 2017: 64), Theophrastus' treatise “On Stones” (Pamuk, 2017: 99), Dostoyevsky's novel “The Idiot” (Pamuk, 2017: 99) etc.

5. Interdisciplinary relations

The postmodern era is also characterized by an interdisciplinary type of relationship, during which there is the reference or combination of different kinds of art. This technique is observed not only in “My Name Is Red”, but also in the novel “The Red-Haired Woman”. In particular, during trips abroad, Cem and his wife Ayşe get acquainted with the painting by J.A. Ingres “Oedipus and the Sphinx”: “İngres’in “Oidipus ve Sphinks” adlı resmi Louvre’daydı ve seyirciyi etkileme gücü düşüktü.” (Pamuk, 2017: 123) – Ingres’ painting “Oedipus and the Sphinx”, which was in the Louvre, was not so impressive. As we can see in this example, Cem was not satisfied with what he saw, because his goal was to come across a picture

that would convey the suffering of King Oedipus, which doesn't take place in the works of European artists. Another painting to which the author of the novel refers is I. Repin's painting "*Ivan the Terrible and His Son Ivan*" which Cem saw in the Tretyakov Gallery. According to the protagonist, the situation depicted on it was very reminiscent of a scene from the myth "*Rustem and Sohrab*", which he had seen long ago in the theater, and which greatly impressed him. This reference is contained in the following sentence: "*Aslında ben bu yolculuklarda babamın kuşağından okumuş bütün Türkler gibi, ister vitrinlerde, ister sinemalarda, isterse müzelerde olsun Batı'da bütün hayatımızı derinden etkileyip anlamlandırarak bir fikir, bir eşya ya da bir resim bulma peşindeydim. İlya Repin'in "Korkunç İvan Oğlunu Öldürüyor" diye bilinen yağlıboya resmi böyle bir şeydi.*" (Pamuk, 2017: 122) – In fact, during these trips, like all other educated Turks of my father's generation, in the West in shop windows, cinemas and museums I tried to find some idea, thing or picture that would turn our lives upside down. This is how Ilya Repin's oil painting "*Ivan the Terrible and His Son Ivan*" turned out to be. An interesting fact is that Dante Rossetti's painting entitled "*Regina Cordium*" (Eng.: Queen of Hearts), which is mentioned in the novel, is both a subject of intertextuality and metafiction. We learn about the picture only in the third part from Gülcihan, who thought she looked like the woman depicted on it, and therefore cut the picture out of a newspaper and hung it on the wall: "*Dergiden kestiğim resmin ressamı Dante Rossetti'ymiş. Hoş bakışlı, güzel dudaklı modeline aşık olup evlenmiş.*" (Pamuk, 2017: 186) – The author of the picture, the photo of which I cut from the magazine, was Dante Rossetti. He fell in love with a model with an impressive look and beautiful lips, and married her. At the same time, the picture is the cover of the book and is part of the elements through which the functioning of metafiction is observed. In the third part, Orhan Pamuk, explaining the purpose and method of writing the novel, also points out the reason for the use of Rossetti's painting in the conversation between Gülcihan and her son Enver: "*Bitince kapağına bu resmi koyar, biraz da güzel ananın gençliğini anlatırsın. Bu kadın, bak, biraz benziyor bana.*" (Pamuk, 2017: 195) – When you finish, you will make this picture a cover and describe a little more youth of your beautiful mother. Look, this woman does look a little like me.

In addition, Orhan Pamuk also shows Cem's interest in cinema, including films that are directly related to the above-mentioned myths. When he stumbles upon Pier Paolo Pasolini's "*Oedipus The King*", Cem rejoices that he has finally seen what he has been looking for in galleries and museums for years, namely the scenes of patricide and forbidden love between son and mother: "*Avrupalı ressamlar bu sahneleri kelimelerle düşünebiliyor, hikayeyi anlatıyorlardı. Ama kelimelerle düşünebildikleri şeyleri, gözlerinin önüne getiremiyor, resmetmiyorlardı. B...u kuralı hem romancı hem de ressam olan İtalyan film yönetmeni Pier Paolo Pasolini Kral Oidipus filmiyle yıkmıştı.*" (Pamuk, 2017: 124) – European artists could imagine these scenes, they understood the story. However, they could not depict their thoughts on the canvas... Italian novelist, artist and film director Pier Paolo Pasolini broke this rule by making the film "*Oedipus The King*".

6. Parody

Another type of intertextual connections is parody. Professor Kubilay Aktulum emphasizes the existence of three ways of expressing parody, among which: 1) the author changes the theme of the work while maintaining the idea he wants to convey; 2) the theme of the work remains, only the form changes; 3) the form of the narrative is used by the author for a thematically different work (Aktulum, 2000: 118). The novel "*The Red-Haired Woman*" belongs to the

first category. After all, the events in it unfold in completely different conditions and over time. At the same time, we observe the author's use of motives common to the novel and previous works (in this case – the myths “*King Oedipus*” and “*Rustem and Sohrab*”), namely: the motive of fatherhood, forbidden love, punishment, the impossibility of avoiding fate and others.

7. Conclusions

Thus, examining the intertextual connections between the novel “*The Red-Haired Woman*” and the myths “*King Oedipus*” and “*Rustem and Sohrab*” according to the classification of Turkish literary critic Kubilay Aktulum, we concluded that the novel most often contains references that can be divided into two groups: those that relate directly to myths and those that relate to other works. Allusions are rare in the novel. In addition, the author addresses in the novel to not only literature, but also to such genres of art as painting and cinema, which confirms the opinion of Professor S. Dilek Yalçın-Çelik about the existence in postmodernist novels of another type of intertextual connections – interdisciplinary. In general the novel is a parody, which is characterized by a change in the theme of the work and the preservation of the idea of the original.

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EDUCATION PROCESS DURING THE COVID-19 LOCKDOWN: CHALLENGES IN TEACHING FOREIGN LANGUAGES

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Summary

Despite great uncertainty in the face of the global COVID-19 pandemic, education institutions have faced immense challenges as they were forced to transfer the education process to an online format: provide equal access to it for all students, meet teachers' and students' educational needs, and make urgent preparations to support education systems in general and training continuity in particular. The pandemic has also triggered a lot of psychological difficulties such as anxiety, tension, and sadness. The aim of this paper is to describe psychological and pedagogical difficulties in education process during COVID-19 lockdown which serve to take actions and develop definite educational strategies that can be implemented in order to prevent further negative consequences in the system of education. The research is also focused on many effective steps undertaken to the suspension of face-to-face classes at all levels, which can be divided into three main areas of action: the implementation of distance learning modalities across a variety of formats and platforms and the support and mobilization of NGOs. It is proved that virtual education, which is open, attractive, and accessible to everyone plays a meaningful role in creating an information society focused on the improvement of lifelong learning in general and during COVID-19 lockdown in particular. The novelty of the research lies in the analysis of the results of the questionnaire presented to the students and their parents is included. It is an attempt to present the problems which parents and students have to face in the conditions of virtual/remote education.

Keywords: COVID-19 lockdown, education process, educational challenges, psychological difficulties, educational technologies, distance/virtual learning.

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1. Introduction

The modern world is saturated with the dynamic technological, economic, civilization and social changes (Huttner:2012; Garrison, Vaughan: 2007). The natural course of life is, on the one hand, inscribed in the unpredictability and lack of stability resulting from different kinds of challenges, and on the other hand, almost unlimited possibilities for students in accessing knowledge, technological novelties, development, action, and work in various places in the

world without leaving their own home. The innumerable new products and experiences allow them to break traditional boundaries, overcome time, enable spectacular achievements, quick profits, dizzying careers and successes.

The pandemic caused by the SARS-CoV-2 coronavirus, currently experienced by people around the world, is part of the dynamics of changes and unpredictable situations faced by modern world in general and education system in particular. The introduction of numerous restrictions and temporary complete social isolation have resulted in all kinds of difficult pedagogical situations, crises, and traumatogenic experiences, the consequences of which are felt by people around the world, regardless of age, sex, skin color, social status or origin. Investigated by sociologists, psychologists and educators, the consequences of the pandemic serve to take actions and develop definite strategies that can be implemented in order to prevent further negative consequences in education.

The pandemic has also left its mark on the education process. In March 2020, teachers faced the challenge of remote teaching for the first time. As a result, many of them felt pressure as well as distance (caused by fear and lack of skills) to use digital tools. The pandemic lockdown was experienced by all participants of the education process (pupils, students, teachers, parents), and its socio-emotional consequences, read by psychologists and educators, as such that requires immediate intervention, supportive, therapeutic or preventive measures.

The COVID-19 pandemic has caused chaos around the globe. In the field of education, this emergency has resulted in the widespread suspension of face-to-face classes at educational institutions in over 190 countries in order to prevent the virus's spread and mitigate its effects. According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), more than 1.2 billion students at all levels of education had stopped attending face-to-face classes by mid-May 2020. Over 160 million of these were students in Latin America and the Caribbean. Even before the pandemic, the Economic Commission for Latin America and the Caribbean (ECLAC) argued that the region's social condition was worsening due to increasing poverty and severe poverty rates, persistent inequality, and growing social discontent. In this context, the crisis would have a significant negative effect on various social sectors, including health and education, as well as jobs and poverty. Meanwhile, UNESCO has identified significant inequalities in educational results that are linked to unequal distribution of teachers in general, and of the best trained teachers in particular, to the detriment of low-income countries and regions, as well as rural areas, where indigenous and migrant communities are concentrated (*Garrison, Vaughan: 2007*). Many of the steps undertaken by the region's countries in response to the crisis in education are related to the suspension of face-to-face classes at all levels, leading to three main areas of action: the implementation of distance learning modalities across a variety of formats and platforms (with or without the use of technology); and the support and mobilization of NGOs.

However, it is thought that, after a brief period of shock and a relatively rapid reorganization of the educational process, various creative ideas, such as special radio lessons, television educational services, and take-home kits, have been developed to support education systems in general and training continuity in particular. Governments and partners around the world, including the UNESCO-founded Global Education Coalition, have created distance learning solutions (*Babelyuk 2020:12*).

2. Literature Review

The COVID-19 crisis is unprecedented phenomenon. It strongly affected international education systems and the poorest and the weakest individuals and societies. The education

community seems to be resilient however, people and societies risk a downward spiral, because of learning loss and exclusion. This situation requires releasing the potential of individuals and through education investment. Distance learning is an important educational challenge. There is a necessity of meeting the needs of the rapidly evolving knowledge in societies.

An important objective of the virtual teaching is the comprehensive help offered to the student in order to construct his/her own world of values and own information bank. Virtual education environment, which is open, attractive, and accessible to everyone plays a meaningful role in creating an information society focused on the improvement of lifelong learning (Son:2007). The COVID-19 pandemic has caused heavy disruption of education systems and affected about 1.6 billion students in more than 190 countries. Closed schools and other educational entities affected approximately 94 per cent of the students all over the world, while almost 99 per cent in low-income countries. The crisis is deepening education inequalities due to decreased opportunities for students mostly living in poor or rural areas, girls, refugees and other. Economic results connected with pandemia may cause that approximately 23.8 million additional children and youth may not attend school next year. However, this crisis has also contributed to innovations introduced in education. We can observe new, innovative ideas to support educational continuity with use of radio, television, and take-home packages. Distance/remote learning was developed by governments all over the world including the Global Education Coalition established by UNESCO.

Schools closure for longer periods of time can be devastating. Children particularly in low-income countries of Asia and Africa are more exposed to physical and emotional violence which negatively affects their mental health. Due to the pandemic many students began to believe that they are behind the other and do not meet the requirements the current education system. According to the US Department of Education, the dropout rate been reduced from approximately 10% in 2006 to ca 5% in 2018. Figures for dropouts this school year show a sharp decline in attendance.

Last year, the pandemic caused the necessity of distance instruction. However, there are opinions that students who had issues in accessing the Internet would suffer from severe learning difficulties. Some regions decided to implement individual education. The remote model of learning mostly affects students from the most underdeveloped and underfinanced communities. They are more exposed to unreliable Internet access, as well as their families are more affected by the economic negative impacts of COVID-19. In other words, the world of many learners has changed significantly ((Garrison, Vaughan: 2007; Malanuyk : 2019). It can reduce the position of education in their plans. Concerns about increased drop-out rates can be applied to every major school district. In technical and vocational education as well as training systems, problems in inadequate digitalization and structural weaknesses, have emerged. Disruptions in workplaces complicated apprenticeship projects and work-based learning.

In the higher education institutions online education has been conducted with the use of recorded lectures and online platforms. However, this type of instruction has been abandoned by some universities, due to missing information technology (IT) infrastructure. There are also issues in adjusting semesters and academic calendars, as some programmes can be implemented online, and some cannot. These results may turn out to be rather helpful to policymakers in elaborating strategies aimed at reduction of the consequences of the COVID-19 pandemics.

Professor Oksana Babelyuk and other scholars presented the conditions of remote education in higher education facilities in Ukraine (Babelyuk, Koliassa, Kushlyk, Smaglii :2020). The epidemics of the COVID-19 and lockdown in Ukraine also was a challenge for the national education system. Educators had to focus fully on various E-learning forms of teaching with the

use of distance edTechs at remote learning such as edTechs of communicative teaching; modular instruction, individualization of learning multilevel (differentiated) training, testing, project, distance education, information, and communication, selecting the elements most appropriate elements for different types of teaching material.

Many higher education facilities such as Department of Germanic Languages and Translation Studies at Drohobych Ivan Franko State Pedagogical University, Department of Foreign Languages and Translation Studies at Lviv State University of Life Safety, Philology Department at Odesa National Maritime University, entered many innovative teaching techniques (*Babelyuk, Koliasa, Kushlyk, Smaglii:2020*). Among them teaching methods included Power-Point presentations of lectures and practical lessons, Web-based learning, virtual laboratories, audio-visual aids, video-based demonstrations.

Due to the COVID-19 epidemics, they have elaborated a multi-media remote instruction which enables students to study independently without a conventional classroom which prevents spreading the virus. Universities have developed a variety of instructional media (ITT) into a remote teaching/learning. The instructional media contain textbooks and workbooks mailed to students and supporting media such as audio with scripts, recorded radio and television programs with printed materials and other audio-visual aids. The websites of these universities provide a full range of activities. They comprise a development fund (e.g. to support for small projects); an inquiry service which combine the departments as well as the programs of online conferences, workshops; and online projects dealing with aspects of teaching and learning. During the COVID-19 epidemics, web-based courses were organized solely via the web (ZOOM platform). The main objective was to exclude contact teaching in the cases where the web is used as a support access to study guides and material or online communication between lecturers and students.

One can see positive changes which enable the development of edTechs in Ukrainian universities. The Ministry of Education and Science of Ukraine provided the access to the international databases of Scopus and the Web of Science as well as extended until February 28, 2021, and May 31, 2021, for all state and municipal universities of Ukraine. The expenses are covered by the budget. New analytical tools have become accessible to many institutions (*Babelyuk et al.2020: 12*).

During the COVID-19 pandemic, students' motivation when learning online has become crucial problem. However, teacher's motivation has not attracted so much attention. Teachers sometimes overlook the importance of this factor in their work. The pressures of the pandemic may have deteriorated the factors affecting teachers to lose motivation. Students are expected to maintain their motivation in learning when different teaching methods are used. It ensures diversity and prevents them from boredom. Students usually represent different styles of learning. Thus, a teacher should meet these needs using different instruction methods. Boring lessons will not contribute to development of students' intrinsic motivation. It can, imply that teachers should consider lecturing to a minimum while applying many teaching strategies that can be more efficient. Teachers build relationships with their students by showing that they care about them. This is a key element to help the learners motivate themselves.

Teacher's motivation is related to student's motivation. Motivated teachers can influence students to study. Students can achieve better or worse results but if teachers are motivated this impact can be more favourable. There are factors which make teachers lose enthusiasm for their work. They sometimes think that they do not encounter sufficient recognition for their work and workload causing stress and demotivation is too heavy. COVID-19 pandemics required to move quickly into an online practice, ensure access to the students, and provide support to

teachers and students. It caused much stress. These stressful elements can be a reason of mental health challenges. Some of the typical indicators which allow teachers to identify students suffering from mental health difficulties may become unavailable. Teachers may not be meeting their students in person. However, they should attempt to find out how students are doing or how they overcome emotional problems.

Teaching and learning during COVID-19 pandemics strongly depended on the way in which remote instruction learning was provided, the communication methods used by teachers, and their interactions with students. Teachers used to mention the shortcomings of students' equipment as well as their difficulties in using the computer, the Internet or not adequate places to learn. However, the lack of direct contact with students, issues with their activation and mobilization, as well as with controlling their knowledge were listed more often than the lack of appropriate equipment. In the report on research in schools, carried out in May/June 2020, many teachers criticize remote instruction as deteriorating relationships with students and parents, and they also miss direct contacts. The difficulties in distance learning in schools were expected as neither teachers nor students were ready for this form of learning and teaching. Approximately 85% of teachers had no contact with online teaching before and those who were familiar with the Internet used it for individual communication with students or to participate in webinars.

Currently one can see special opportunity create stronger relationships with students' parents. The existing circumstances may be helpful for their involvement in their children's learning. Families are the best support to students' needs. WhatsApp groups, or virtual meetings are useful for parents to reinforce the role of families in their children's learning. One should realize the stressful situation that families experience, and possibilities created for parents to provide information on their children's learning needs.

Parents who come from different socio-economic backgrounds usually represent different abilities (cognitive and non-cognitive skills) to support their children in their learning at home during COVID-19 pandemics. Parental support can comprise non-financial and financial support. Non-financial support is connected with cognitive and non-cognitive skills. An important factor in this category is amount of time devoted by parents to their children at home. There is an association between parents' and children's cognitive abilities. More educated parents usually dedicate more time to their children and are more involved in their learning.

However, not all parents are familiar with the digital skills needed to assist their children. Those from lower income backgrounds, may not possess essential digital skills. Scholars (*Garrison, Vaughan: 2007*) claim that computer technology can improve students' learning results only when parents can instruct their children how to use online resources (*Brown 2001*). Some parents may also represent lower socio-emotional abilities. They may, not appreciate education enough to encourage their children to learn. Students whose parents are more educated usually experience more emotional support than the learners of less educated parents.

3. Method

The study included 40 primary school students and 25 parents. It focused on the organization of students' work within distance learning. Further questions are associated with the following issues: how much time students dedicate to completion of the tasks received from their teachers and how they manage with difficulties in very specific conditions. The data included in the survey also analyse what is the impact of isolation on the contacts of students with their

peers and teachers as well as their moods and mental conditions. The survey also referred to the equipment and its operating by the students and their parents. Parental help is a matter of great importance. Several points of the questionnaire refer to this issue and were addressed both to students and their parents. The survey also focuses on such elements of remote learning as motivation or overloading students with the tasks sent by teachers and other problems that have arisen during distance.

4. Research

The conclusions of the conducted survey provided information of the pedagogical and psychological problems encountered by the learners and their parents in time of COVID-19 lockdown. It can be stated that the competences of students and teachers in the usage of information technologies have improved. The surveyed students claimed that they lack relationships with peers and teachers.

Among psychological difficulties we can mention that social isolation may unfavourably influence on such developmental tasks in adolescence, as setting new, more mature associations with peers. Lack of social relations, overloading with lessons and homework can cause negative students' moods. The surveyed students had rather good learning conditions, and adequate IT equipment for remote learning. The survey revealed low activity of students during classes in spite of positive assessments. Teachers argue that this trend can be more intense.

Constant staying at home disturbs the rhythm of the day, which unfavourably affects the functioning of the family members. It may have a negative reflection on the quality of sleep and health (e.g. reduced immunity). Moreover, inappropriate division of time between learning and playing can cause tension and stress. A day of the household should be well balanced as time for studying resting, play and responsibilities is concerned. Disrupting the relationship between individual activities due to interrupted or prolonged learning, may bring to overloading and a significant decline in school achievements. It is very important to have a permanent place to study and take into account the preferences of the children,

5. Conclusion

The ongoing COVID-19 pandemic presents major challenges for education systems of different countries and social systems, which must be approached in a coordinated manner. It also teaches important lessons on what matters most in life as a member of educational community. Today, these challenges and lessons offer the possibility of rethinking of the role of the education process in preserving human life and dignity, ensuring that no one is left behind. In other words, as countries explore the best way to deal with uncertainty and reopen their educational institutions safely, this crisis offers a once-in-a-lifetime opportunity to strengthen national education systems and turn them into more equitable and inclusive systems. It also discusses general problems related to teaching and learning education processes in the era of globalization and other issues such as inequality in access to the appropriate educational level. It is proved that quality teaching occurs when teachers plan, develop and assess school environment that includes student-teacher relationships and activities that promote student development. The novelty of the research lies in the analysis of the results of the questionnaire presented to the students and their parents is included. It is an attempt to present the problems which parents and students have to face in the conditions of virtual/remote education.

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PROBLEMS OF HORSE BREEDING DEVELOPMENT IN PEASANT FARMS IN THE SOUTH OF UKRAINE (1860s – 1910s)

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Summary

The paper analyzes the state of development of horse breeding in the peasant farms of the South of Ukraine in the post-reform period. The dynamics of quantitative development of the industry is traced. The relationship between the increase in the number of horses and the growth of the population and farms in the region has been established. It is proved that the peasants were the main owners of horses. The thesis about the “peasant” nature of horse breeding in the South of Ukraine is argued. It was found that the use of work horses in farming contributed to the development of the industry. Government measures to encourage the development of local horse breeding have been traced: creation of a network of state stables and copulation stations in order to improve the quality characteristics of work horses, holding exhibitions, etc. The price level and place of equestrian trade in the region are analysed. Attention is focused on the lack of “entrepreneurial” horse breeding in the region, the excessive situational nature of the horse trade among the peasants, and its local centers – fairs were clarified. The reasons and factors that led to the decline of the industry in the South of Ukraine are analyzed: high cost, low level of knowledge and culture on keeping, care, breeding horses, etc.

Keywords: horse trade, fairs, workhorse, agricultural entrepreneurship, farmer, state stables.

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1. Introduction

During the 19th cent. the Russian Empire ranked first among European countries in the number of horses: in 1882 there were more than 21 million of them. An important role in the development of horse breeding was played by the region of Southern Ukraine¹, where herds of wild horses grazed on the endless steppes for many centuries. Not surprisingly, the local population “domesticated” and increasingly used horses on the farm. Therefore, Ekaterinoslav, Tavriya and Kherson provinces had advantages among most others in breeding various types and breeds of horses due to the presence of large pastures, fresh fodder, warm dry climate and more.

It is difficult to even imagine how many modern technical and technological means are involved in the performance of those functions that two centuries ago relied on ordinary horses! During the 19th century they remained the main means of transportation in both rural and urban areas. The army, in particular the military cavalry troops, could not do without them. Horses also served as a means of transporting goods, a transfer for postal items. In landed estates, thoroughbred horses, in addition to purely economic, had a leisure purpose (as a hobby) and were kept for races, exhibitions, etc.

¹ Lands of the South of Ukraine included Ekaterinoslav, Kherson and Tavriya provinces, which at that time were part of the Russian Empire.

However, from the 1860s radical changes took place in horse breeding: along with the preservation of traditional trends, a new one developed – *agricultural, or peasant*, which became decisive in the development of the industry until 1917. This was due to the formation of capitalist relations in the agricultural sector of the economy and the formation of peasant farming in the South of Ukraine.

The fact is that the abolition of serfdom in 1861 in the Russian Empire led to a significant increase in the number of peasant farms. In the Southern Ukrainian provinces with a mild temperate climate, vast land areas and chernozem soils, land was plowed rapidly and the transition to commodity grain production. If wealthy landowners switched to the use of agricultural machinery, the peasants actively used horses to cultivate the land, as a traction force in agricultural work. Therefore, horses were of great importance for peasant farms as “livestock”, without which it was impossible to grow grain. In addition, no domestic animal enjoyed such respect among the peasants as the horse. “*A good owner does not have a bad horse,*” said the proverb.

As we can see, horse breeding as a branch of economy due to favorable climatic conditions, the presence of historical experience, the growth of demand had all the chances for development. However, in the words of the famous historian A. Skalkowskij, “... both breeding and trade in horses were at a level much lower than that which nature itself assigned to the region” (*Skalkovskij, 1853: 377–378*). Therefore, the purpose of this study is to clarify the peculiarities of the development of peasant horse breeding in southern Ukraine and the reasons for the decline of this promising industry in the post-reform period. To achieve it, a quantitative analysis of horse breeding was carried out, the nature and specifics of the development of the industry in peasant farms, the directions of government policy on the development of the industry and the peculiarities of the horse trade in the region were clarified. The research methodology is based on the principles of objectivity, systematization and historicism with the use of general scientific and special-historical methods: historical-genetic, historical-comparative, descriptive, historical-typological, system-structural.

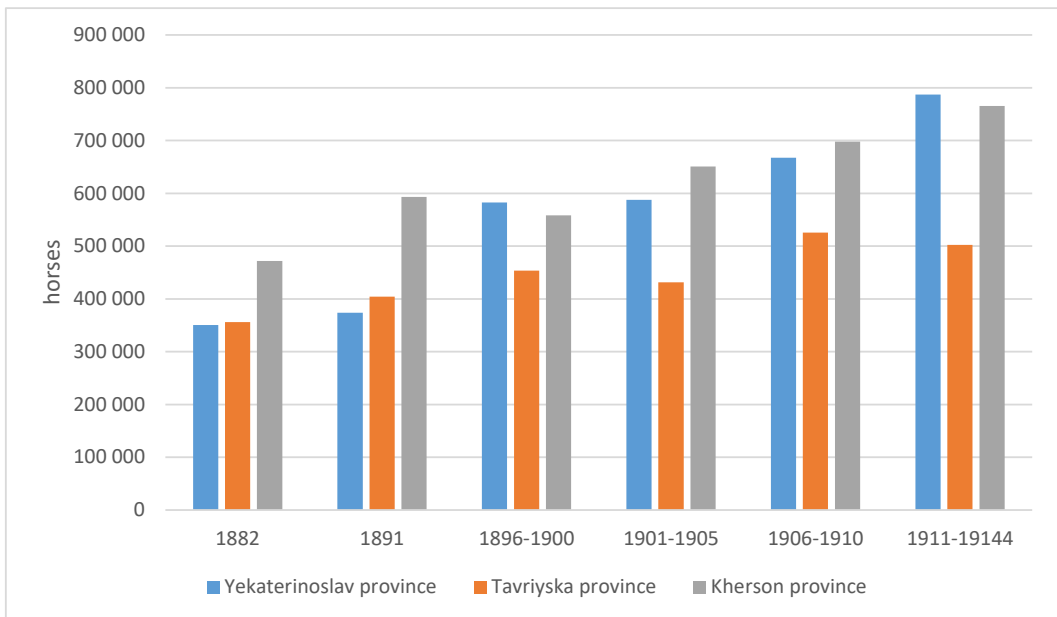
2. Quantitative analysis of the state of horse breeding in the South of Ukraine

In the early 1860s, horse breeding in the South of Ukraine was in a state of partial decline, or at least stagnation: “did not prosper”, as contemporaries said (*Bystrickij, 1889: 204*). In the Tavriya province, the Crimean War of 1853-1856 and the expulsion of the Tatars caused significant losses of horses in 1860-1862, which was caused by competition with the Don region, where horse breeding was developing rapidly. In some farms Kherson peasants preferred to use oxen for field work, so the demand for horses was quite limited. The fact is that the local breeds of steppe horses that dominated the Kherson region were small, suitable for light cavalry and light field work, so they were in demand only among a few German colonists, Jews and burghers.

An important reason for the reduction of the role of animal husbandry, including horse breeding, in the South of Ukraine in the post-reform years was the reformatting of the agricultural sector of the economy. The rapid population of the region, the growth of demand and prices for grain crops, the plowing of land due to the reduction of pasture areas have led to the sociability and dominance of entrepreneurial grain production over livestock. It is important that in the economic use of unploughed steppe lands, large landowners preferred commodity-oriented merino sheep, which brought owners higher and guaranteed profits.

However, the rapid increase in the number of peasant farms focused on agricultural activities has increased consumer interest in horses as “livestock”. In 20 years (from 1860 to 1880) the total number of horses in the Kherson region has more than tripled, and in Tavriya – 1.5 times (*Kherson Provincial Statistical Committee, 1863: 108-111; Verner, 1889: IV, 4; Zertsalov, 1892: 5*).

During the 1880s and 1890s, the number of horses in the South of Ukraine continued to grow steadily – by an average of 38% compared to the previous period. Characteristically, this process was accompanied by a decrease in the number of farms that did without horses: in 1896 there were 30%, ie 6.3% less than in 1882 (*Dubenskij, 1903: 225*). Such positive dynamic processes in the quantitative growth of horse breeding were observed in the South of Ukraine before the First World War. The available fluctuations of quantitative indicators in the direction of reduction in some years, as a rule, depended on the yield, climatic features, epidemiological diseases that lurked in the horses in a given year. In addition, it should be borne in mind that in the statistical reports of different departmental institutions, due to the different criteria for collecting information, the indicators differed slightly.



Graph 1. Dynamics of growth in the number of horses in the Southern Ukrainian provinces

Source: Dubenskij, 1903: 225; Veterinarnoe upravlenie Ministerstva Vnutrennih Del, 1915a: 1-4; Veterinarnoe upravlenie Ministerstva Vnutrennih Del, 1915b: 1-5

In the late 19th cent. increase of horse herd was driven by the objective laws of economic expediency, relating primarily to peasant farms, which usage of horses was gaining momentum. Less farmers used oxen preferred for field operations and replaced them with horses. Economist A.A. Kaufman explained it as follows: “The main disadvantage of bulls – slowness and weakness compared to horses”, so “when calculating a pair of bulls is usually equated to one horse”, meanwhile, “a middle-class bull ... is more expensive than the average peasant horse”

(Kaufman, 1917: 144–332). Thus, at the beginning of the 19th cent. the horse was the main type of working cattle. Indicative in this context are the indicators for Elisavetgrad district² where in the first post-reform 20 years the number of horses increased by 6.1 times, while livestock cattle – only twice (Zertsalov, 1892: 7).

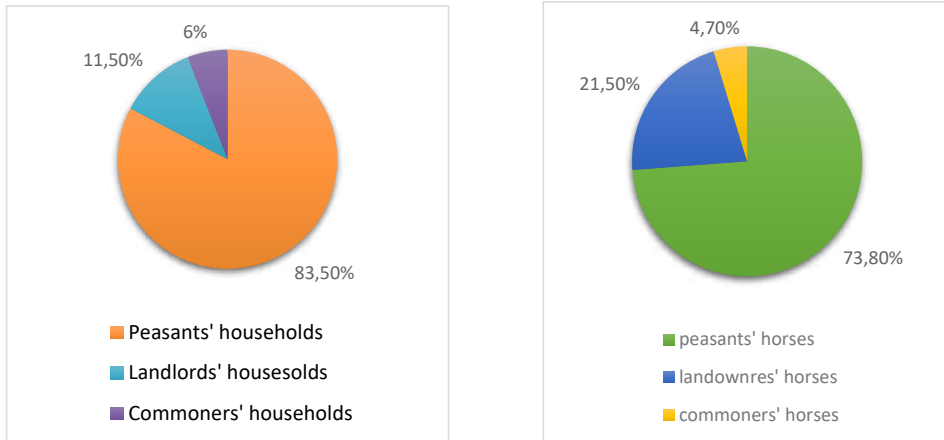
It is worth mentioning that the distribution of horses by counties also differed in quantitative heterogeneity from 27 thousand in Slavic-Serbian district to 104 thous. at the Olexandrivsk district (Ekaterinoslav), from 6 thous. in Yalta to 151 thous. in Melitopol district (Tavriya) (Dubenskij, 1903: 226). This discrepancy was due primarily to the number of peasant farms and their economic orientation in each district. For example, in Yalta farmers engaged mainly tobacco, gardening and viticulture using human labour, therefore the horse farm were not needed (Bojko, 2013: 110–111). Instead, there were more horses in those regions where grain farming developed.

It should be noted that the South of Ukraine was also characterized by a high concentration of horses relative to the population. In 1891-1896, for every 100 people, there were on average 29 horses: 25, 35 and 28 in Ekaterinoslav, Tavriya and Kherson provinces, respectively (Dubenskij, 1903: 228). Quite strong performance, particularly in Tavriya province, is due to the preservation of the region tradition herd horses, but the level of availability of horses and subjected to reduction even here, because even at the beginning of 1880s it was 45.1. As a conclusion, people's provision of horses decreased compared to increasing population. Therefore, the increase in horses in the region was explained only by the increase in agricultural holdings.

As noted, the owners of the horses were landowners, peasants and burghers. In the first half of the 19th cent. maintenance of horses was carried out mainly by landowners (Giber-von-Greifenfels, 1897; Volos, 2012: 99–102; Zaderejchuk, 2010). But after the abolition of serfdom, the peasants took over this initiative. In fact, as early as the 1880s the ratio was established, which did not change significantly until 1914. This distribution of horses between peasants and private owners remained almost unchanged, ranging from 80-90% and 10-20% respectively (Glavnoe Upravlenie Konnogo Zavodstva, 1884: 66; Centralnyj Statisticheskij Komitet Ministerstva Vnutrennih Del, 1901: 5; Centralnyj Statisticheskij Komitet Ministerstva Vnutrennih Del, 1914: 10, 16, 35, 52). In the Southern Ukraine distribution did not differ from most provinces of Russia: among households, 82.5% were peasants horse households, who like to focus on $\frac{3}{4}$ horses of the region, and a 11,5% of the landed households who contained $\frac{1}{5}$ horses.

It is significant that peasants outnumbered private owners in the number of horses, even among multi-horse farms. So it is entirely clear that the development of horse breeding in the South of Ukraine is largely dependent in the state of peasant's farms. Because of farming being in both the material and the social aspect as heterogeneous, we should pay attention to the distribution of horses among the peasantry. It is important that the number of horses was strictly determined by the level of economic needs of the owner and, accordingly, testified to the volume and direction of management. Keeping horses was too expensive for ordinary peasants, so the number of horses could be judged on the property status of the family. For example, farms with 1 horse can be classified as semi-proletarian, farms with 2-3 horses – to medium. Instead, owners who had 4 or 5 horses were considered as wealthy, and having 6 or more horses meant being involved in farming entrepreneurship (Ostrovskij, 2014: 66).

² Elisavetgrad district of Kherson province was one of the centers of horse breeding in the South of Ukraine.



Graph 2 & Graph 3. The ratio of horse farms (by social status of owners) in the (left) & Distribution of horses between farms (by social status of owners) (right) in the South of Ukraine

Source: Dubenskij, 1903: 226, 227

In 1888-1891 there were 19% of wealthy and farm peasant farms (which had more than 4 horses) while the average in Russia was 11%.²⁰ The share of horse concentration in business farms was 35.6%, and in the wealthy – 21.1%. Compare with those of other provinces, where businesses owned more than half the horses (16.7%), while the proportion of horses with wealthy peasants were almost identical (20.7%) (*Centralnyj Statisticheskij Komitet Ministerstva Vnutrennih Del, 1891; Centralnyj Statisticheskij Komitet Ministerstva Vnutrennih Del, 1894*). This confirms the fact of high development of grain entrepreneurship in farms in the Southern region.

In the 1890s 1/3 of households provinces of Southern Boulevard and secured and more than 4 horses, that fit and inventory entrepreneurial orientation, and more than 1/2 held 2-3 horses allowed to meet its own household needs (*Dubenskij, 1903: 227*).

3. Quality state of horse breeding of peasant's households in the South of Ukraine

These quantitative data convincingly show that a characteristic feature of the development of horse breeding was *its peasant character*. So let's try to find out the quality of the industry, which is now concentrated in the hands of peasants.

The so-called “*simple*” or “*farm*” *breeding*, which involved the use of animals in as draft animals working with or in agricultural activities, was common only in farms. On it rested tiller production: export of fertilizer, plowing, harrowing, sowing laying, transporting harvest and so on. Workers set in motion agricultural machines: seeders, harvesters, threshers, fans, sorting machines. Cartage ensures the supply of livestock feed (transport hay, straw) supply of fuel and building materials. With its help agricultural products were delivered to local markets, brought up to railway stations, river's piers, sea's ports. Horses as a traction force were used in industry and construction. With their help postal communication and transportation of passengers was carried out. By the way, no other animal of pre-revolutionary Russia and in many other countries was as honoured as a horse.

However, unfortunately the villagers hardly concerned the issue of improving its quality characteristics. Typical working peasants horses characterized as small in stature, weak physique, differentiation of forms (large or small head, big flabby belly, weakness, etc.). For example, the Ekaterinoslav peasants were dominated by steppe horses of the Little Russian breed, which were not adapted to the hardships of their long-term work, while the Taurian peasants were dominated by horses of the South Russian or Crimean breed. Instead, working horses in the Kherson region, which also came from local breeds, were more enduring. However, the conditions of their keeping obviously did not contribute to further improvement (or at least preservation) of positive traits. As already mentioned, in the South of Ukraine there was a process of intensive plowing of land and the transition to commodity grain production, which was accompanied by a significant increase in prices for the purchase and lease of land. This negatively affected the development of horse breeding, causing shortages of pastures and, consequently, fodder for satisfactory livestock. After all, an ordinary peasant, who had (unlike landowners) a limited plot of land, used it to the maximum for growing wheat, oats, barley, and so on.

So where did the peasants graze the horses? Almost throughout the year the horses were in the open air on grass and didn't have special care from owner. The exception was working cattle, which received better nutrition and were provided with grain during field work. In the summer horses were sent to the public grazing, where each owner had personally taken care of the problem of grazing. Sometimes horses were given for grazing to private owners for 4-9 rubles or subject to working off. Winter diet of cattle consisted of straw and partly hays as well. If the owners were unable to feed the horses, they gave it to private owners for feeding on cash terms – 10-15 rubles or working pay (*Zertsalov, 1892: 30*).

The rapid growth of the population and the fragmentation of peasant families required, accordingly, a proportional growth of working cattle, which took place extensively. In the most unfavorable position were foals, which the owners began to take care of only from the moment of operation, which started too early – often from one year, and in field work – from 2-3 years. Often the peasants preferred to buy not adult horses, but foals, which were much cheaper, which were immediately used on the farm. This obviously did not contribute to the efficiency of livestock, and, moreover, led to population degradation. After all, the peasants did not take care of the problem of reproduction and choice of the stallion. Unfortunately, they rarely turned to local landlords who kept thoroughbred horses to improve the breed. Noting the lack of control in the breeding of horses and the lack of ideas about the importance of breeding stallions for offspring, veterinarian Zertsalov wrote that “communities do not care about getting good foals, they do not have good producers” (*Zertsalov, 1892: 29*).

Among the problems that befell on local horse breeding and negatively affected in the development of the industry, we also note of the disease and horse-stealing. Among the diseases that most often affected horses in Southern Ukraine were foot-and-mouth disease, scabies and hoof diseases, as well as (except in Ekaterinoslav region) a variety of anthrax, which caused enormous damage to owners. For example, at the end of 1880s Elisavetgrad owners lost from 1,5 to 2,3% of horses (*Dubenskij, 1903: 241; Zertsalov, 1892: 30*).

Horse theft was common here and caused significant damage. Peasants tried to combat this phenomenon by various means: from exile to Siberia on the verdict of the communities to bonuses for the detention of horse thieves, but the result was meager. As a result, the peasants used a very unusual form of protection on the principle: “the worse the horse, the less likely it is to be abducted” (*Glavnoe Upravlenie Konnogo Zavodstva, 1884: 114, 132; Markov & Dubenskij, 1903: 238*). Undoubtedly, this had a negative effect on the quality of working

horses. Surprisingly, however, in the settlements of German colonists cases of theft of horses almost never happened that contemporaries attributed to exemplary solidarity and good faith duties of night watchmen, “to searching for stolen horse and thieves whole congregation of colonists rises to their feet as one man” (*Glavnoe Upravlenie Konnogo Zavodstva, 1884: 132*). Therefore, the experience of German settlers proved that the problem of horse theft could be solved by concerted action, rather than careless treatment of horses!

Unfortunately, this attitude to horse led on to massive degradation of peasant horses. The vast majority of horses in peasant farms, “does not belong to a particular breed and no different good qualities about except perhaps undemandingness and the ability to get used with the worst living conditions” (*Chirvinskij, 1902: 61*).

However, it should be noted that exceptions did take place. For example, wealthy owners (farmers, colonists, tradesmen) of Kherson, particularly from areas with developed horse breeding, were more concerned with controlled breeding hardy working horses and turned to horse breeders. Most popular were horses of Elisavetrad and Alexandriya districts, which came by horses landed factory, improved by manufacturers of local plant stable (*Dubenskij, 1903: 236–237*). Some exceptions were also horses on farms of German colonists that had exceptional stature and strength through good feeding and care. In caring for cattle, they used the Ukrainian proverb “*Do not feed a horse with a whip, but feed with oats*”. To improve the breed each community bought stallion-producers (not rarely for 500–600 rub.), and kept the females for breeding of improved breeds (*Dubenskij, 1903: 235–236, 238*). It is noteworthy that German villagers have been using the mixed breed horses for all field work, so they no longer cared about the physical condition of livestock. Instead, the vast majority of farmers, as it was already noted, continued to use oxen for heavy work in the field (plowing, transporting grain from the field, etc.). Under unsatisfactory housing conditions, their horses were simply unable to cope with such loads. Therefore horsepower was used primarily to treat land after plowing, working with a thrashing machines, light transportation, etc. (*Bystrickij, 1889: 203*).

4. Areas of state support

As we can see, the limit of both material resources and scientific knowledge on the maintenance and development of horses had a negative impact on the development of the industry. The peasants, who, in fact, only after 1861 began to engage in farming, have not yet formed a certain “culture” of farming in both agriculture and animal husbandry. In this situation, in order to overcome the crisis of horse breeding, which became very obvious in the early 1860s, the government took a number of incentive measures.

It should be noted that the horse breeding industry has been permanently under the protection of the state throughout the nineteenth century. The “first wave” of state measures was observed in the second quarter of the 19th century. It was aimed at popularizing horse breeding in landed estates. We will remind that in the sphere of the state interests there was a breeding of riding horses. And the South of Ukraine has long been an important supplier of this mobile resource for cavalry. Therefore, in the 1830s and 1840s, the Simferopol Horse Factory and military horse factories under the Cavalry Districts of the military settlement in the Kherson Region were established here (*Dubenskij, 1903: 239*). In addition, there were state zemstvo connecting stables with mobile points, the first of which appeared in Ekaterinoslav and Kherson provinces. In the middle of the 19th cent., from 50 to 100 thoroughbred stallions of various colors were kept here at public expense. Despite the promotion of horse breeding in this way

and free services, local landowners and breeders seldom turned to these institutions – from 50 to 100 cases per year (*Skalkovskij, 1853: 378–379*). Therefore, over the next decades, the number of riding factories in southern Ukraine declined. First of all, this was due to the fact that in the process of formation of the capitalist economy, landlords and horse breeders faced the problem of increasing the cost of keeping horses. At the same time, the low purchase prices offered by the military (in fact, the only source of sales) were unprofitable and forced the owners to either choose more profitable industries, or at least switch to breeding trotters or workhorses, the prices of which covered the costs (*Dubenskij, 1903: 239*). The sale of riding horses from the peninsula of the Tavriya province was virtually impossible due to the distance from the roads³. As a result, the commission appointed in 1865 stated in general the absence of specialized factories for breeding riding horses in the Tavriya province.

So absence of expectations from the government explained the results of economic unreasonableness rather than by conviction correspondent of Main Department of State Horse Breeding collegiate adviser Ivanov, “probably indifference to new business from for horse breeders”⁴. Instead, there is no doubt about his conclusion about the “sad” state of horse breeding in the region and the need for government intervention (*Bojko, 2013: 111*).

So “second wave” of government initiatives to encourage the horse breeding was observed in 1880–1890, which were controlled with the introduction of State Horse Breeding Committee or through local authorities. This time they aimed to improve the condition of agricultural horse breeding. After all, according to the observations of S. Urusov, “working breed, not surprisingly for the agricultural country, is in complete decline” (*Urusov, 1911: 344*). So counties were relied on primarily the task of promoting the improvement of breeds of local working horses that were used in farms, by organizing seedy settlements, rural stables and horse exhibitions.

In addition to the existing ones, in the 1890s the Tavriya State Stable was founded in Simferopol, as well as a network of county zemstvo stables with copulation stations. At the beginning of 1898 64 stallions were kept there, the value of which was determined at 800–1000 rubles, and some up to 2000 rubles! Among the represented breeds, specially brought from the St. Petersburg state horse breeding stable, were purebred English trotters, intended for racing and riding, as well as half-breeds, suitable for use on the farm and for transportation. In order to improve the quality of working horses, Russian thoroughbred trotters and small mountain horses were imported to farms (*Svistula, 2015: 66*).

Based on three stables, in the region for 15 years was equipped with 1,156 copulation stations, more than half of which were accounted for Kherson (*Dubenskij, 1903: 240*). Thus heads of departments of horsemanship tries to solve the dilemma of “Mohammed and the mountain,” which, in their opinion, was the main obstacle of peasants’ recourse to state factory stables. In addition, by prior arrangement with the owners, the best stallions of a certain breed were distributed at the village connecting points. Provision of services cost the population 2–3 rubles and sometimes free. Zemstvo also had the right to replenish stables. For example, Melitopol local authorities acquired 9 breeding stallions in 4 years, and 854 cases of copulation of peasant mares were recorded⁵.

During the 1st decade of the 20th cent. there was a certain revival in the work of the Tavriya state stable, which instilled in the initiators of the promotion of horse breeding a certain

³ *State Archives in the Autonomous Republic of Crimea*, Fund 77, Inventory 1, Case 268, Sheet 163 reverse-164

⁴ *State Archives in the Autonomous Republic of Crimea*, Fund 61, Inventory 1, Case 3, Sheet 3.

⁵ *State Archives in the Autonomous Republic of Crimea*, Fund 77, Inventory 1, Case 268, Sheet 4–9, 144.

amount of optimism. In 1912 there had been already contained 112 stallions, operated 41 copulation stations, and the total number of calls has reached nearly 2500, 78% of which from peasants⁶.

Traditionally steady demand for government stables was seen in Kherson, especially in Elisavetgrad district. Here during the last quarter of the 19th cent. number of copulation stations increased in 3.7 times, the total number of applications – in 4,5 times. Interest in improving horse breeds has been growing steadily among the nobility (from 49.1% to 62.7% of appeals) and quite intensively among the peasantry (from 7.1% to 26.8%) (*Zertsalov, 1892: 28*). Thus, landlords got an opportunity to save money, as farmers sought to improve work quality horses by changing oxen with them in households. However, in a large part of districts, state measures did not achieve the expected result: the connection points were closed due to lack of demand, and the peasants preferred to buy horses from the neighboring provinces. According to general estimates, less than 1% of mares in the Southern Ukrainian region were involved in the “services” of the stations, which obviously did not contribute to the development of local horse breeding (*Dubenskij, 1903: 240*). “How can we explain this attitude to copulation stations from peasants is a mystery”, complained local veterinarian in an attempt to explain the age-old peasant conservatism⁷.

Analyzing government steps to improve the state of horse breeding, you cannot keep on with a focus organizing horse races and exhibitions. Horse racing, understandably, focused on encouraging breeding for herd horsemanship of wealthy owners. In Kherson, Ekaterinoslav and Simferopol they were arranged at public expense since 1829 and brought the owners of the horses-winners money as a reward, which in the middle of the 19th century was, for example, from 500 to 1500 rubles (*Skalkovskij, 1853: 378*). To organize equestrian exhibitions local authorities saw a way to socialize horse breeding, expand opportunities to get acquainted with the breeds of local horses and creating way to purchase horses for the cavalry. Because of geographical distancing and the lack of a developed transport infrastructure both farmers and landowners were deprived of the possibility to demonstrate and sell their horses in other regions⁸. Accordingly, with the permission of the State Horse Breeding Committee initiative and funds for rural bodies at the turn of 19th-20th cent. equestrian exhibitions were held in the region every year. It is noteworthy that both riding and working breeds were presented among the exhibition specimens.

Assessing the value of exhibitions for the development and promotion of horse breeding business, known horseman knyaz S. Urusov noted that their success is ensured only by the presence of an interest in people to the field, not bureaucratic desire to “report” on the implementation. “Where there is chronic shortage of fodder, where there are no sufficient pastures, there it is impossible to improve, there is no horsemanship, and so there are useless exhibitions”, he wrote (*Urusov, 1905: 31*).

As we can see, government measures have obviously not led to qualitative changes in the region's horse breeding. Quantitative development of industry explained only by growth of working needs of farms, because most farmers considered it “as a luxury because of questionable profitability and expensive maintenance” of horses (*Bystrickij, 1889: 202*). Therefore, the hopes for qualitative changes and comradeship of the industry were placed primarily on local

⁶ State Archives in the Autonomous Republic of Crimea, Fund 77, Inventory 1, Case 301, Sheet 49, 65-66.

⁷ State Archives in the Autonomous Republic of Crimea, Fund 62, Inventory 3, Case 232, Sheet 249-250.

⁸ State Archives in the Autonomous Republic of Crimea, Fund 77, Inventory 1, Case 268, Sheet 163 reverse-164.

landowners: nobles, military, German colonists, who set up horse factories in their estates rather through “subjective enthusiasm” than economic feasibility.

5. Trade in horses and pricing

The degree of commoditiness of agricultural sectors in the formation of market relations was an important indicator of their development. Let's see how the process of horse breeding was realized in the South of Ukraine. Undoubtedly, with the growth of the population and the number of peasant farms, the priority of the use of horses in agriculture contributed to this. However, peasant horse breeding was focused on obtaining a working horse to meet economic needs. Horses were not bred for sale, so this industry (unlike, for example, merino sheep) did not become entrepreneurial. The trade component was only the surplus of cattle on the farm, which had no holiday trade.

Horse trading took place between the local populations and encompassed other Russian provinces (*Merder, 1878: 8; Mel'nikova, 2017: 42-43*). Bulk sales of horses were carried mostly by direct owner – horsemen, peasants, in some cases, intermediaries as Gypsies, Jews, and peasants. Among the major forms of trafficking – firstly urban, secondly market (day markets, rural markets) and fairs – the last was the most common, as was available for all population groups. About 80% of fair trade occurred in rural locations (*Kandelaki, I., 1914: 8; Denisov, 1911: 15-17*).

The most active fair trade was held in June and September. The impact on trade was carried out by weather and state of roads – main routes of connection in the 19th cent. The most profitable period for sale of horses was consider summer and autumn, because horses had the most attractive inventory thanks to fresh feed and warm dry weather. Only in July-August the number fairs became much lower, which was associated with the beginning of rural agricultural activities, which, obviously, were not without horses.

Most of the population fairs, where horses purchase/sell occurs, were held in Elisavetgrad and Novomyrhorod (Kherson province), in Ekaterinoslav, colonies Eynlahe, Novomoskovsk, Bakhmut (Ekaterinoslav province), Kakhovka, Melitopol and Nogai (Tavriya province) (*Skalkovskij, 1853: 377; Markov & Dubenskij, 1903: 254-259*). They differed in time, number, breeds and purpose of horses, regional differentiation in the supply and sale of horses, and so on. As a rule, at the largest fairs for sale were from 400 to 1 thousand horses; on smaller, respectively, – from 100 to 400 heads. Exceptions were fair of counties Tavriya province, where they brought herds of horses from surrounding counties of neighbouring provinces, as well as the Don region and the Black Sea (Chornomorskyi) province. So here the total number was measured in several thousand, reaching up to 10 thousand heads (*Dubenskij, 1903: 257; Glavnoe Upravlenie Konnogo Zavodstva, 1884: 114*). Regions supplying horses in Kherson and Ekaterinoslav fairs were much wider and supplemented by Poltava, Kharkiv, Kyiv, Kursk, Voronezh, provinces, Kuban, etc.

As a rule, most fair were specialized and subsequent to the sale of working horses, so the buyers were mostly farmers. In addition, harnessed horses were in demand, and riding repair horses were in low demand.

The only fair that gathered breeders from around the region and where the factory trotting thoroughbred horses were taken to sell, were held in Elisavetgrad district (*Dubenskij, 1903: 258–259*). In addition, only here there were purchases of horses for export to Austria and Romania, which were carried by cavalry repairmen (*Glavnoe Upravlenie Konnogo Zavodstva, 1884: 132*).

Important significance played trade fairs in Novomoskovsk district (*Glavnoe upravlenie Gosudarstvennogo Konnozavodstva, 1867: 44*). For example, Pereschepynskyy fair gained popularity through prime location, because it was organized at the intersection of three trade routes: 1) from Voronezh and Kursk provinces to Yekaterinoslav; 2) from the Don and the Kuban through Ekaterinoslav to the Bessarabian province and Romania; 3) from Poltava province to fairs in neighbouring provinces (*Dubenskij, 1903: 255*). Usually purchases were carried out there of Don riding horses for Army cavalry. Purchased in Petropavlovsk fair riding horses were supplied to the Border Guard Service and the Romanian repairmen. Despite the fact that traditionally local fairs and factories remained a source of supply of riding horses for cavalry troops, during the study period championships were won by other regions, including Don (*Mel'nikova, 2017: 49; Markov & Dubenskij, 1903: 253*).

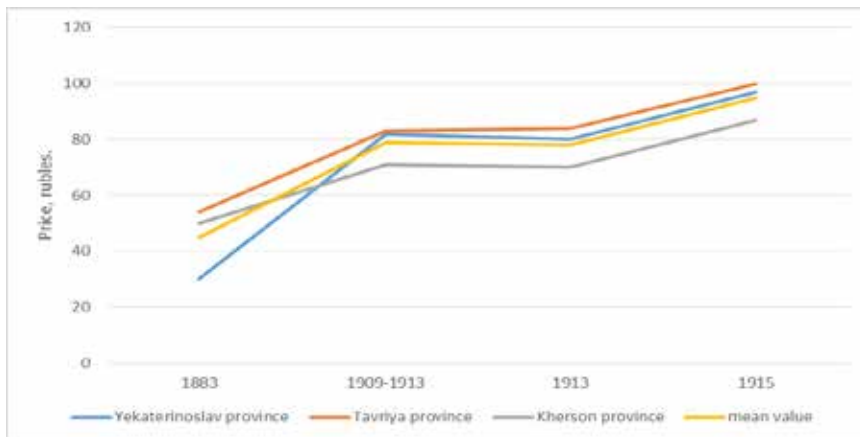
Pricing in the horse trade was influenced by many factors. As a rule, in large holdings the supply of cattle with fodder did not depend on the yield of a certain year, so the owners did not sell horses due to food shortages, but on their own initiative. Therefore, the value of landowners' horses was determined solely by quality indicators. While the value of peasant horses did not depend on their "marketable appearance", but on the yield of a certain area and the owner's ability to feed cattle. "For the availability of feed stock, excess cattle farm was not for sale, but if the food is not enough, then all were sold", noted contemporaries (*Zertsalov, 1892: 30*). For example, the average cost of a horse in Elisavetgrad district in the harvest year of 1887 was 30-50 rubles, and in the barren year of 1889 it fell to 15-20 rubles. In the worst case, so that the horse simply did not die of starvation, the peasant had to give it for 6 rubles (mostly for slaughtering on a leather mill). Highest price for horses were observed in the spring, which was caused by seasonal demand of masters in traction force to perform agricultural work. If, for example, in the spring the horse could be bought for 57 rubles, then in the fall the price dropped to 46 rubles (*Blioh, 1876:163*).

Undoubtedly, an important factor in pricing was demand. For example, in times of crisis for horse in 1860s at Petropavlivka fair in Ekaterinoslav among three thousand sale horses only 100 were purchased, and therefore the prices were relatively low – from 10 to 35 rubles. At the Uspensk fair (Ekaterinoslav province) out of 350 horses only 50 were sold on average for 25 rubles (*Pamyatnaya knizhka Ekaterinoslavskoj gubernii na 1867 god, 1867: 123, 131*). Nice horses, which cost up to 100 rubles, were not bought at all. In such circumstances, there was very popular exchange of horses among Gypsies, Jews and peasants, with compulsory currency surcharge – "pridacha"(addition). In the Spaso-Preobrazhensk fair it was noted that "currently trading of horses has fallen": herds of horses were not exhibited for sale, and the owners or dealers showed up to 5 horses which were sold on average for 20 rubles. (*Pamyatnaya knizhka Ekaterinoslavskoj gubernii na 1867 god, 1867: 123-124*). There were cases when they were not bought at all.

Since 1880 in parallel with the stabilization of the horsemanship in region, trade was increasing, as reflected primarily in growing prices and demand for horses.

It should be noted that the trend of growing prices was characteristic of animal husbandry development in general, so the rise in prices on the horses was in proportion to the price of large cattle, sheep, and pigs and so on. Since the 1910s, due to the increase in the number of peasant farms in European Russia, the problem of stagnation of agricultural horse breeding has again become acute for the state. Main State Horse Breeding Committee created a "special interdepartmental committee of horse breeding affairs", whose members prepared a "massive improvement project of horse breeding in country". The way out of this situation was seen by manufacturers especially in improving the quality of local breeds. However,

given the extremely consumerist attitude to horse, which for decades formed at peasants societies, competent experts in this field evaluated these measures very pessimistic. “Degeneration of peasantry horse, as stressed by S. Urusov, is observed everywhere in Russia and is progressing almost at the same rate everywhere” (*Urusov, 1905: 25*). Given the lack of funds, shortage of pasture and feed, all zootechnical efforts to improve productivity of peasant working cattle were doomed to failure. Final blow to this industry, as well as private entities in general, had been dealt by notorious revolutionary events of 1917-1920 years.



Graph 5. Dynamics of price increases on the horses in the South Ukrainian provinces

Source: Departament Zemledeliya i Selskoj Promyshlennosti, 1884; Glavnoe Upravlenie zemleustrojstva i zemledeliya, 1916: 28-29

6. Conclusions

Thus, horse breeding in the South of Ukraine after 1861 acquired a “peasant” (by social status of owners) character and was marked by agricultural orientation. The increase in the number of horses in the region was explained by the growth of the population and peasant farms. The development of horse breeding was facilitated by the growth of the share of working horses in peasant farms, which was manifested in the expansion of the range of their exploitation. Therefore, we can state that the development of the industry took place extensively in accordance with the growth of production needs and the number of agricultural centers in the region. Despite the favorable natural and climatic conditions, the presence of stable demand for horses, this industry did not receive entrepreneurial orientation, so it could not claim the championship among others. Trade of working horses (and, hence, their pricing), despite the presence of stable demand among the peasants, remained excessively situational and limited to the domestic market. Wealthy farmers tended to engage in those types of farming that yielded the fastest profits and were less costly to invest.

Indeed, keeping horses was too costly for the average peasant. A purely pragmatic approach to the use of horses as “livestock”, inadequate housing conditions, uncontrolled reproduction of livestock, disease and theft of horses did not contribute to the productivity of the industry. Peasant farming was in its infancy, and most peasant farms had no marketable orientation at all. Under such conditions, it is obvious that the peasants were unable to ensure the

quality development of horse breeding without state support. It is worth of positively assessing the government's efforts to improve the quality characteristics of peasant horses, which consisted of creating state stables with numerous connecting points in southern Ukraine, organizing exhibitions to increase zootechnical awareness, forming a “culture of horse breeding” among the population and more. However, the deterioration of the socio-political and economic situation, the First World War, the revolutions and the collapse of the Russian Empire and the establishment of Soviet power in Ukraine put an end to peasant farming for many decades. After gaining independence in 1991, Ukraine began complex processes of entrepreneurship in the agricultural sector of the economy. Therefore, the analysis of the specifics, problems and prospects, achievements and failures in the development of leading agricultural industries in the South of Ukraine in the second half of the 19th – early 20th cent. can be useful for building your own strategy for the development of agricultural production at the present stage.

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MILITARY-HISTORICAL RECONSTRUCTION OF THE MIDDLE AGES IN UKRAINE AT THE BEGINNING OF THE 21ST C.

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Summary

In this article genesis and evolution of the medieval warfare game reproduction in Ukraine is considered on the basis of web-publications and memoirs of the reconstructors. The reconstruction movement includes the clubs, associations and informal groups of interested people, who study and reproduce the costume, armor, weapon and tactic of certain epoch. The typical model of historical reconstruction club creation is analyzed and the extension of such clubs net in the 1990-2000s is traced. The author pays attention to places (spaces) of reconstruction and to subcultural folklore of the historical reconstructors. The features and specificity of the main festivals of historical reconstruction in Ukraine (“Ancient Medzhybizh”, “Terra Heroica”, “Tu Stan`!”, “Rus` Peresopnytska”, “Medieval Hotyn”) are investigated. Also the author put attention to some technical characteristics of the reconstructed weapon, used in different types of contests and field games. The issues of historical authenticity and identity of the reconstructors are examined as a central problem of reconstruction process.

Keywords: youth movement, festivals, role-playing, historical fencing, medieval combat, subculture.

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1. Introduction

The phenomenon of *military-historical reconstruction* emerged and quickly spread around Ukraine in the late 1980-s. Reconstruction in this context means reconstitution of material and technical culture and events (as a game or simulation) of certain historical epoch using archeological, written and pictorial sources.

As structural preconditions of this phenomenon we can name, firstly, folkloristic reconstructions and interest around “ethnic antiquities” that was increasing in the USSR since the end of the 1960-s and, secondly, military-patriotic volunteer search work, executed by out-of-school centers at that time too.

So it isn't strange that contemporary movement of the military-historical reconstruction in Ukraine is divided on two large streams: reconstruction of the Middle Ages and Early Modern time and reconstruction of the conflicts of the 20th c. (especially two world wars and the civil war in Ukraine). In this research we consider the first of these streams.

2. A brief history of the movement

The military-historical reconstruction of the Middle Ages during three decades has already formed its own subculture in Ukraine. The space of discourse and practices of this subculture partly intersects with the spaces of other subcultures: role-players, Tolkienists, rockers and neopagans. Reconstructors are usually “adepts” of several among these subcultures.

Scientific investigation of military-historical reconstruction of the Middle Ages in Ukraine isn't developed: there are no synthetic monographies, a few articles are written by historians and folklorists (*Aleschenko, 2012; Petrenko, 2012*) or by specialists in touristic business and economical geography (*Anipko, 2015; Hajday & Havrylenko, 2012*). In 2014 Ukrainian State Center of school education introduced the scientific and technical program "Historical reconstruction" that includes theoretical and practical studying of methods of the late Medieval warfare reconstruction (*Ryazantsev, 2014*).

As Odesa reconstructors assume (and, in our point of view, this situation is typical), their activity began in Tolkienistic groups in the end of the 1980-s that regular often met in certain places (Lanzheron beach), organized camping out of the city, played scenes from the books of J.R.R. Tolkien and tried to reproduct the material culture of the characters (*Na Moldavanke otkrylsya perviy v Odesse zal istoricheskogo fehtovaniya, 2014*). After a while some people, who were interested in accurate reconstruction of military, everyday and spiritual aspects of life of certain historical epoch, separated from this community. Thus "reconstructors" divided from the "role-players", although border between them seems to be illusive.

Since the middle of the 1990-s the military-historical reconstruction of the Middle Ages was named as "knights combat" or "medieval combat". In May of the 1998 one of the first "knights festivals" took place near Kamianets-Podilsky. It was devoted to the City Day and it wasn't concentrated on certain epoch or region, but it emphasized just a process of competition in armor and with swords. These first festivals ("Sokolynyi kubok" ["Falcon cup"] in 1999 among them) contemporary reconstructors of Kamianets-Podilsky call "pseudo-knightly" (*Pustynnikova, 2017*) because of the lack of authenticity.

On the edge of the 1990-2000-s historical reconstruction clubs began to spread widely and to form a net. Usually they were created by similar scheme: in some location initiative group of 3-4 persons emerged, they visited a festival or field game (see further about the typology of reconstruction games), learned the experience of already existed clubs and with their help started their own development. Purchase or mastering of the armor, game weapon and civil costume of certain epoch, trainings, local games and festivals organizing were the most important parts of this development.

It's very difficult to rebuild the chronology of creation and development of particular reconstruction clubs, because such communities are often informal, with small quantity of members. Sometimes they disintegrated without any traces, except memoirs of their former members. That's why it would be more expedient to consider the history of reconstruction festivals and meetings.

The earliest Ukrainian festivals of historical reconstruction – "Ancient Medzhybizh" (since 2003), "Terra Heroica" (since 2004, Kamianets-Podilsky), "Tu Stan'!" (since 2006, Urych in L'viv Oblast) – showed themselves as durable than the later festivals and they are continued till nowadays.

In 2006 L'viv club of historical reconstruction "Silver wolf" organized international festival of medieval culture "Ancient L'viv" in the Museum of Folk Architecture and Rural Life named after Klymentii Sheptytskyi. L'viv of the 13-14th centuries ("time of the blossom of this town") was the topic of this festival. The participants presented 5 countries and weren't united by a certain style. The second and the third festival took place in 2010 and 2012.

In 2007 in Lutsk Castle the festival "Staleva Troyanda" ("Steel Rose") was held. Principles of the historical reconstruction movement at that time can be understood with one detail: this festival was organized by Odesa (!) regional federation of martial arts and wellness systems, collaborated with Lutsk clubs "Helm" and "Knight Fellowship of Volyn Land" ["Братство

Рицарське Землі Волинської”] (*“Staleva Troyanda” u Lutsku, 2007*). This festival hadn't clearly defined stylistics and emphasized entertaining and competition aspects of “knights” combat. Thus, in the middle 2000-s reconstruction movement already had strong organization forms – regional and interregional associations.

On the edge of the 2000-2010-s in Ukraine not durable or single time local and regional festivals arose: in 2008-2011 “Mstyslav Fest” took place in Chernihiv; in 2012 “Stara Fortetsya” (“Old Castle”) was held in Trostyanets (Sumy Oblast); in Bilhorod-Dnistrovsky, except regular events of Odesa reconstructors, took place “Bilyi Bastion” festival (“White Bastion”) that was concentrated on the medieval everyday life reconstruction (*Festival istoricheskoy rekonstruktsii “Belyi Bastion”, 2012*). In the latter festival military aspect pursued the aim of experience exchange, but not of entertainment, as in other festivals.

Combination of both aims can be noticed in military-historical events, devoted to certain battles – for example, reconstruction of Zboriv battle (1649) and Hotyn battle (1621), both in 2009. The participants studied special features of costume, weapon and tactic of 17th c.

One of the achievements of military-historical reconstruction movement in Ukraine is the opening of “The Park of Kyiv Rus” in 2010 near Kopachyv in Kyiv Oblast. This project was funded by organization “Slavic fund”. Despite private stakeholders, the project invited G. Ivakin, head's assistant of the NASU Institute of Archeology, as scientific administrator (*Drevnyi Kyiv u parku “Kyivska Rus”, 2021*). In this park Kyiv Detinets (fortified town center) of the 10-13 centuries is reconstructed, many regular festivals and events of historical reconstruction are taken place there.

In the end of the 2016 Ministry of youth and sports of Ukraine added “medieval combat” in a list of admitted types of sport (*Serednyovychnyi byi vyznaly vydom sportu d Ukraini, 2016*).

Political crisis in Ukraine in 2013-2014 showed that reconstructors of Middle Ages in Ukraine often are social active people, engaged in the “street activism”. Maksym Shymko, a participant of Vinnytsia historical reconstruction club “Bilyi vovk” [“White wolf”] was killed by a sniper during Euromaidan; Anatoliy Kalin, founder of Odesa historical club “Porubizhna varta” [“Frontier guards”] died during street clashes and fire in Odesa on the 2nd of May, 2014. Moreover, political processes made some changes in the whole life of some clubs and festivals. Annual festival “Staleva liha” [“Steel League”], which was holding in Odesa since the early 2000-s, in 2014 moved to Sudak (Crimean peninsula) because of political position of its founder, D. Koksharov, and some of his colleagues (*Chast` odesskih “rytsarey” perebralas` v okkupirovanniy Krym, 2014*).

In 2021 clubs of historical reconstruction of Middle Ages (or historical fencing clubs) exist in every regional center of Ukraine and also in towns, advantageous for this activities because of their historical sights (Kamianets-Podilsky, Bilhorod-Dnistrovsky, Hotyn, Medzhybizh etc.). Some of them are concentrated on the military-historical reconstruction of certain epoch: for example, club “Вѣверица” [ancient word for squirrel and a small coin in Kyiv Rus'] reproduces style of Kyiv principality of the 11-13th cc. (*Klub istorychnoyi rekonstruktsiyi “Viveritsia”, 2016*); “Vitaliyery” from Dnipro reconstructs warfare of North Europe of the 14-15 cc. (*Klub istoricheskoy rekonstruktsii “Vitaliery”, 2021*). Some of them orient on two or more epochs: club “Tangar” (Odesa) reconstructs English knights of the 14-15th cc. and musketeers of Cossack hetman Ivan Vyhovskyi, who lived in the 17th c. (*Rekonstruktsiya, 2017*); “Kamianets-Podilsky military-historical fellowship” reproduces warfare style of Kamianets-Podilsky guards of the second part of the 15th c., first third of the 17th c. and the beginning of the 20th c. (*Sait Kamyanets-Podilskoho viyskovo-istorychnoho tovaristva, 2021*). However, some

clubs don't connect themselves with certain epoch and territory (e.g. "Luches`k" from Lutsk, "Shpora" from Zhytomyr).

As well as everywhere in the world, ancient fortifications are popular places of the military-historical reconstruction of the Middle Ages. In the 19th c. they lost their military function and often they became ruins. Contemporary festivals give an opportunity of regular repair and care of the antiquities at least for the tourists.

Let's consider some cases of such places.

In Medzhybizh the festival "Ancient Medzhybizh" (in the end of August) has been held since 2003 and the festival "Winter Tower" (after Orthodox Christmas) – since 2010. They are organized by Khmelnytsky military-historical reconstruction club "Voyin" ["Warrior"] and Ukrainian State historical reserve (such collaboration occurs in other cases too).

In Kamianets-Podilsky the largest in Europe festival of military-historical reconstruction of the 17th c. "Terra Heroica" has been held since 2004. Accurate reproduction of costume, weapon, armor and tactic of the named epoch are its constitutive features. The participants play for Ukrainian Cossacks, Moskovian Streltsy, Crimean Tatars and Transylvania warriors, as well as other European armed formations (musketeers, hajduk etc.). Infantry and cavalry tactics, shooting from light cannons and hand guns are reconstructed; sham buildings are fired, communication between squads carry out by flags and kettledrums (*Pustynnikova, 2017*).

Annual festival "Tu Stan!", which is held near Urych in L'viv Oblast since 2006, has other specification. Ancient Rus', Kingdom of Galicia-Volhynia and Mongol raids are its topic. Except typical reconstruction of costume, armor and weapon, in 2009-2010 catapults and rams were used during group battle ("*Tu Stan!*" – 15 rokiv viddani istoriji, 2021).

In 2010-2011 large international festival "Battle of Nations" was held in Hotyn Castle. It gathered participants from 4 countries in the first year and from 7 countries in the second (Ukraine, Russia, Belarus, Poland, Germany, Italy, Canada). The festival was organized by "Association of the Middle Ages reconstructors" from Kharkiv. After that "Battle of Nations" began to move from country to country: in 2012 it was held in Warsaw with support of the "International association of the Middle Ages historical reconstructors" (12 national teams) (*Istoricheskoye fehtovaniye, 2012*). On the other hand, in Hotyn the new festival – "Medieval Hotyn" – has been held. In 2012 during this festival reconstruction of mass cavalry battle and clashes on spears were reconstructed at first in Ukraine.

Since 2012 in Peresopnytsia (Rivne Oblast) historical reconstruction club "Вѣверица" [see above; "Squirrel" / "Small coin"] and archeological center "Peresopnytsia" celebrate the festival of reconstruction of the 10-13 cc. named "Rus' Peresopnytska". Participants should comply with the rules of strict authenticity: the weapon should fit armory of that epoch and territory; characteristics of the weapon's mass and dimensions should completely replicate the originals (except flails, horseman's picks and axes with a blade longer than 5 cm), but the tips of spears should be blunted, the tips of arrows and darts should be made from soft amortizing material (*Bojovi pravila, 2015*).

The largest festivals of historical reconstruction in Odesa and Odesa Oblast are "Porohova Vezha" ["Powder Tower"] (in Odesa central park named by Taras Shevchenko), "Casta Moncastro" "Cup of Bessarabia", "Akkermanskyi klynok" ["Akkerman Blade"] (in Bilhorod-Dnistrovsky Castle). These festivals don't have strict historical topic, the participants represent military culture and tactics of the epochs and territories, chosen by themselves or their clubs.

3. Historical reconstruction as regular practice

The military-historical reconstruction can be considered as a systematic activity of individuals (reconstructors) and groups (clubs, associations).

The first component of this activity is a research of certain period by adequate sources (written, archeological, iconic) and scientific publications. A part of the reconstructors have historical or archeological education, sometimes – an academic degree. However, most of them train their skills of historical sources analysis by themselves or with more experienced members of the club. Archeological and iconic sources are very important for the reconstructors, because they allow to see directly the costume, weapon, warriors posture of certain epoch.

The second component is purchase or mastering of the historical costume and game weapon. This process is the most laborious and problematic, because it induces a number of issues: authenticity of material, color, cut and form, mass and dimensions of the weapon, thus – juridical status of this weapon nowadays. Newcomers often buy the first kit of clothes, armor and weapon, since “in Ukraine market of such things have already form because of the Internet” (*Pustynnikova, 2017*). However, many reconstructors have a desire to make “historical things” by themselves, so they try to study traditional handcrafts (blacksmithing, authentic sewing, carpentry, pottery etc.). Also this component includes regular training with the weapon.

The third component is using the knowledge, skills and things during the reconstruction game. O. Petrenko proposes the typology of reconstruction and role games in relation to their scale:

- 1) board, verbal and textual games;
- 2) “languedocs” in subcultural slang, that means event in close building with quantity of participants less than 50;
- 3) town games or local tournaments, competition between the clubs;
- 4) field games – the largest among them, that means travelling to certain location in the countryside and duration 3-7 days (*Petrenko, 2012*).

The convent is one more type of reconstructors` events. It means planned meeting for the experience exchange and communication.

The field game or reconstruction festival begins from idea / conception, created by the “master” or “master group” (initiators). The developing of idea can last a few months or a year. Members of the “master group” divide the responsibilities of the general conception, the plot line (if it exists), supervision of stylistic authenticity, relations with authorities, guard, medical and food support. “Location masters” manage the game on the certain territory (if the field is divided on several “camps”, teams). “Graveyard master” works with the players after the “death” of their characters. “Play technicians” are the players, whose characters are subordinate the “masters” and are used for the plot providing (*Petrenko, 2012*).

Reconstruction of the battles during the field games and the tournaments submit to strict rules too. The duels often include categories “shield-sword” (both players have shield and bladed weapon), “sword-sword” (without shields), “halberds”. Group battles imply the same quantity of the participants (5x5, 21x21); they are often named “buhurt”.

During the “buhurts” every player can endure a number of hits, after that he/she should get out of the fight or fall down like a dead. The rules of the festival “Rus` Peresopnytska”, for example, allow hits by the blades and pole weapon: helmet, corps, thighs, biceps. These rules include many details like “if helmet has no aventail and nose protection the hits in the neck and the face are forbidden” (*Boyovi pravila, 2015*).

During the tournaments elimination contests are conducted with a circle system, final contests – with an Olympic one.

During the years of its existence the movement of the historical reconstruction in Ukraine has formed its own subculture with specific slang, folklore, stereotypes and identities. Folklore of the Ukrainian reconstructors was researched by L. Aleschenko (*Aleschenko, 2012*). She names anecdote, linguistic game, conversational folklore and topical folklore narratives as the most popular genres in this community. Subculture folklore regulates communication, creates an image of relatively closed society with some “esoteric” knowledge.

There is inside typology of the reconstructors in their subculture according their aims and measure of their immersion in the past: reconstructors, who reproduce material and technical details (“tin buttons of Tatar cavalry” (*Pustynnikova, 2017*)); “fighters”, who are interested most of all in the battles; “goblins” / “pokemons” / “Martians” – people, who “don’t stick to the rules of historical authenticity while forming of personal kits”, “use excessive contemporary things and materials”, create “chaotic collection of the historical things that couldn’t be combined in reality” (*Pustynnikova, 2017*).

Opposite trends in the reconstruction movement can be illustrated by the “Kamianets-Podilsky military-historical fellowship” is fine example of “authenticity trend” in the reconstruction movement (“we have realized that hitting heads of each other isn’t for us” (*Pustynnikova, 2017*)) and the Lutsk club “Luchesk” (“we aren’t historians and we rarely immerse in historical books; we are more interested in force interaction with other people and objects” (*Suchansi lytsari, elfy ta mahy u Lutsku, 2014*). The head of the “Kamianets-Podilsky military-historical fellowship” O. Zarembo says that “ideal aim of the reconstruction is a person of that time in authentic clothes, ammunition and even way of thinking” (*Pustynnikova, 2017*), but military-historical reconstruction (unlike the Neopagans, for example) very rarely begin to identify themselves with a human from the past completely. Furthermore, military-historical reconstruction often doesn’t include reproduction of folklore and spiritual aspects of some ethnic traditional culture, so it rarely excite ethnic or national identity of the reconstructors.

4. Conclusions

The military-historical reconstruction of the Middle Ages as a practice of material culture and historical events reproduction became popular in Ukraine since the end of the 1990-s and has widely spread during the 2000-s. The reconstruction movement includes the clubs, associations and informal groups of interested people, who study and reproduce the costume, armor, weapon and tactic of certain epoch. The reconstructed objects are used actively during field games and festivals of historical reconstruction, held on the territory of abandoned or defined as culture heritage fortifications (castles, bastions).

The military-historical reconstruction also includes game contests with reconstructed weapon, which battle characteristics (blade sharpness and width, material of tip of arrow and spear), are consciously decreased. Blank shots from historical types of the fire-arms (handguns and light cannons) are allowed, as well as cavalry battles, pyrotechnics, authentic ways of non-verbal communication.

The movement of the military-historical reconstruction can be described as a system with its own orders, norms and rules (rules of fighting, of the field game organization etc.) and also as a subculture with certain values, style and folklore.

Personal aims and motivation of the reconstructors can vary from sincere interest in accurate reproducing of historical details to competitive and sportive aspects. It’s important, in

our point of view, that the identity of the reconstructors are limited by the subculture, they don't identify themselves with an image, or character of the game, so they keep in their mind an idea of historical, cultural and mental distance.

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PERIODIZATION OF ART AND INDUSTRIAL EDUCATION DEVELOPMENT IN UKRAINE

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Summary

The essence of the term “art-industrial education” is highlighted in the article. The main stages of the development of art – industrial education in Ukraine are singled out. The peculiarities of the formation of art-industrial education at each stage are revealed. It is emphasized that due to the expansion of the centers of the functioning of artistic and craft industrial schools, the artistic style began to go beyond the limits of the one national at the third stage. It is noted that at the present stage of development, the existing system of special art education is looking for new ways to satisfy the demand for specialists in art- and- industrial and design education. The purpose of the article is to analyze the development of art-industrial education in Ukraine. New realities of the country demanded a great number of specialists in the field of applied arts education. Artists, who were capable of independent creative design, industrial painters, who were able to understand the tasks and organize work on their implementation in manufacturing, craftsmen who were aware of the methods of making art products, as well as artisans who had technical drawing skills and were ready to work with increasingly complex technical equipment, were in demand at plants and factories.

Keywords: development, artist, educational institution, art-industrial school, design.

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1. Introduction

Nowadays, when our country is going through times of change, authentic historical knowledge, which is the only link that unites pedagogical experience of previous generations and attempts to build a modern and effective system of public education, is becoming extremely significant. The importance of art and industrial education and its development, determination of prospects have become really important in Ukraine. Therefore, great relevance is given to the analysis of the experience of forming the national system of special art education, which was evolving over several centuries under the conditions of multinational Ukrainian state, being under the influence of world experience, aimed at solving, primarily, practical tasks which were put forward by the demands of social progress. An in-depth analysis of activities and functioning, are crucial today.

The problems of the development of art and industrial education in Ukraine are highlighted in the works of such scientists as (*L. Voloshyna, 2008*), (*Y. Zvenyhorodska, 2011*), (*D. Kozubovskiy, 2010*), (*G. Maksysko, 1971*), (*L. Sokoliuk 2004*), (*R. Shmahalo, 2006*). A retrospective of art and industrial education was identified by the following scientists: (*V. Nemtsova, 2004*), (*S. Mihal, 2017*), (*I. Kodlubai, 2016*), (*O. Pobirchenko, 2013*), (*L. Synyshyn, 2014*), (*Z. Tkanko, 2019*).

Researches by (*V. Hlazychev, 2015*), (*V. Tiahura, 2013*), (*A. Khmelovskiy, 2003*), (*A. Chebykin, 2020*), (*S. Shabelnyk, 2017*), (*M. Yakovlev, 2009*) are comparing historical and

modern experience of domestic and foreign design education. Scientist (*V. Danylenko, 2010*) comprehensively characterized the model of Ukrainian design, where he was able to reveal its national and globalization aspects. (*S. Verhunov, 2006*) devoted his scientific research to the analysis of three-dimensional modeling in industrial design of Ukraine at the end of XX- beginning of XXI century.

2. The first stage (XVIII-middle of XIX century)

The development of art-industrial education in Ukraine occurred in accordance with social, political and economic circumstances of that time. Completion of the industrial revolution, development of transport infrastructure, expansion of internal and external trade, a rapid population contributed to the strong rise of culture and education in the country. Progress in education development, great public interest in art and culture had a stimulating effect on the economic and social recovery in Ukraine. Within conditions of modernization of Ukraine's economy, culture, education, it was impossible to meet the demand for highly qualified personnel by practical training or with efforts of separate educational institutions. The need for artists and draftsmen for the industry was so acute that finally led to the formation of such an independent professional field of vocational education as art-industrial one (*Shabelnyk, 2012*).

So, art and industrial education has the same beginning as purely artistic one, but what is most significant it is learning to paint that is recognized as necessary for the development of taste and training for various kinds of artistic work in all branches of industry (*Encyclopedic Dictionary, 1903:7*).

The establishment of art and industrial education in Ukraine, its social foundations give reason to distinguish four stages in contexts of commonly-European related tendencies (*Shmahalo, 2001:21*):

The first stage (XVIII-middle of XIX century.) – centres of folk art creativity are becoming the basis of founding the first educational institutions. So, classes of painting, drawing and architecture were founded in Kharkiv (1767) In 1844, there was opened “Technical Academy”, which became the beginning of design education in Lviv (*Shmahalo, 1999:28*).

An important centre of art and industrial education was a private drawing school, founded in 1869 on the initiative of Maria Dmitrovna Raievska – Ivanova. The school in the 60's of the XIX century became one of the first links in the chain of art- and industry-related educational institutions after Strohanov College in Moscow and Shtyhylyts specialized school in St. Petersburg (*Sokoliuk, 1984 : 8*). Art school of M.D. Raievska – Ivanova was publicly accessible, children from poor families studied there for free.

So, the school provided initial training for many future artists and contributed to the spread of art education in masses. Free training unfavorably affected the material possessions of the school, which at the time had no government subsidies. Thanks to the experience gained abroad M. D. Raievska – Ivanova opened evening classes of technical drawing at her school, where artisans received knowledge at their spare time that made it possible to improve their crafts and make them more profitable. The educational process of the Raievska-Ivanova school is largely determined by the contingent of students and the need of the city for art staff of a specific specialty. The following types of students are characteristic of the school: 1) future artisans, 2) students who sought to enter the academy of arts, 3) students who learnt to draw in order to enter technical higher education institutions, 4) amateurs who turned into art lovers (*Sokoliuk, 1986:80*). Such a diverse group of students required that the school should be a source of artistic education in a broad sense. The main subject taught at school was drawing from nature. It was regarded as the basis of the visual art for artists of all specialities. Except

for the picture, which was the main subject, they studied drawing, mastered painting, learnt the history of arts, were engaged in sculpting, using natural sketches of flowers and plants, made samples of stylized ornament, which, as a result, were widely used in architectural and decorative plasticity of art Nouveau (*Zvenyhorodska, 2011:14*).

At the peak of its activities, the school got a big shock – it was supposed to be closed because of M. Raievska-Ivanova's illness at the end of 1894. Only in September the following year the school was restored in a new status, entirely at the expense of the city, which led to the loss of art and industrial inclination, there was a gradual process of requalification for training artists of easel painting (*Nemtsova, 2004: 102*).

3. The second stage (the end of XII – the beginning of XX century)

The second stage (the end of XII – the beginning of XX century), which includes the following sub-stages:

1. **1877** is the beginning of a systematic activity for the elevation of national arts and crafts, the orientation of professional schools to the creative direction of mastering crafts.

2. **1878-1884 years** – directing the activities of the established industrial schools at preserving and developing traditional home crafts.

3. **1885-1902** – reorientation of tasks and goals of industrial instruction to the creation of factory industry. Under the conditions of industry development in the Southern Russia (which included Ukraine), there appeared a need to create a scientific and education centre for maintaining a new production base (*Danylenko, 1988 :14*). At the same time art and industrial education was created, the fundamentals of which were formed by two educational institutions: Kharkiv Institute of Technology and Drawing School of Maria Dmitrivna Rayievska-Ivanova. These institutions were the first in Ukraine in terms of their design orientation (*Danylenko, 1996:10*).

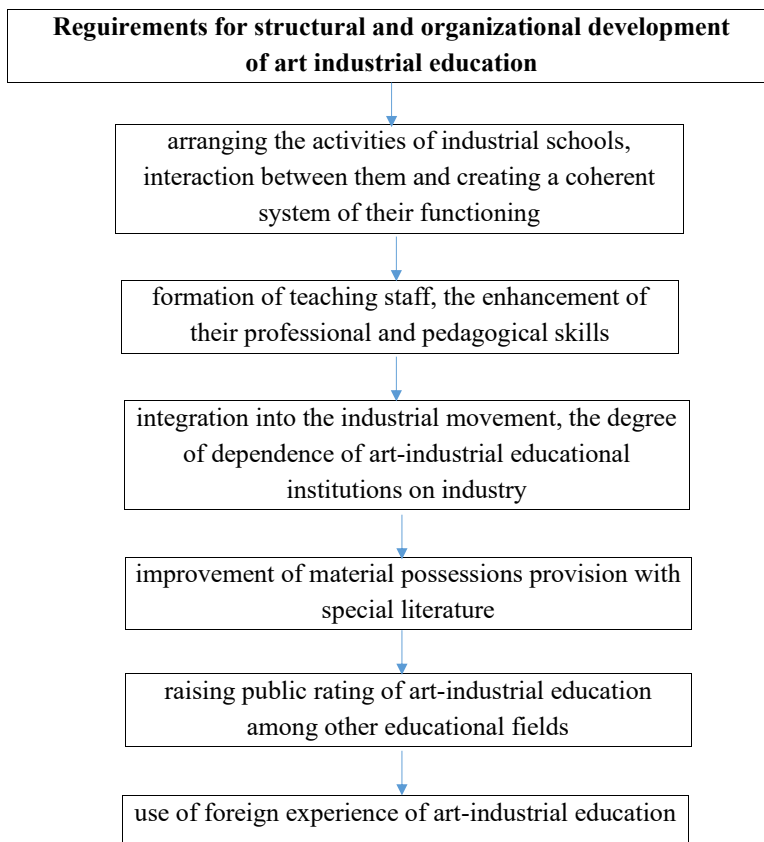
Kharkiv Institute of Technology (nowadays National Technical University “Kharkiv Polytechnic Institute”) began its work in 1885. It was the only educational institution in the country where the teachers accepted the problems of aesthetics of technical objects most seriously, thus laying the basis for the development of engineering design of the region. The first director of the institute was V. Kyrpychov, his scientific interest was concerned with the field of theoretical mechanics, mechanical engineering in particular. He urged future engineers to consider aesthetics of the shape of the machine when designing. Alongside a talented engineer V. Kyrpychov, Y. Stoliarov, the professor of applied mechanics, was working, who understood the beauty of technology and noted that a true designer, regardless of specialty, was an artist. At the beginning of the twentieth century, teachers at the Kharkiv Institute of Technology paid much attention to engineers' art training. Therefore, drawing class was introduced to the first year students of mechanical engineering speciality, the curriculum of which involved sketching from nature with pencil, and architectural forms of antiquity and the Renaissance served as models. Also, the architecture, architectural and technical drawings were taught in the first and second years. In the third year, the course “Architectural design” was introduced, where each student on the ground of theoretical knowledge and practical skills, had to complete the project of two stone houses (*Danylenko, 1988: 15*). As a result, future engineers received an education that contained elements of design training (*Zvenyhorodska, 2011:14*).

At the beginning of XX century free academy of arts was founded in Lviv, where the common thing for all the teachers was the desire for the versatility of artistic expression in various forms of art such as architecture, graphics, design, painting, sculpture, applied art, which was the result of the struggle of progressive teachers against the conservative system of educational process and following academic rules in art (*Synyshyn, 2014: 145*).

The search and experience of establishing art and industrial education of the late XIX – the early XX centuries shows that all the hard work in this area finally took the form of a unified system, which was to bring the art and craft movement, art and design to a notch. The formation of art-industrial education revealed a wide range of problems that rose before the education system and were recognized by the society. But by their nature, they fell into two groups: structural-organizational problems, which required attention on the part of society and state support as well as art and aesthetic ones, which had a greater tendency to develop theoretical foundations of art education based on the history of arts and crafts theory. Structural-organizational development of art-industrial education put forward a number of specific requirements, which are shown in Fig.1 (Danylenko, 2006); (Turchyn, 2004).

Simultaneously with the educational process, art- industrial education had to solve new tasks (Tiahur, 2013:20).

- correlation of art origin and manufacture work;
- to form the theoretical basis of the criteria for the artistic and aesthetic value of industrial products;
- to find the ways of interaction of traditional folk aesthetics and modern industrial – technical one.



Tab. 1. Requirements for structural and organizational development of art industrial education

4. **1902-1910** – raising the activity of art-industrial schools, enhancing their authority and social status; growth of creative and organizational directions; number of schools and their structural diversity in this period reached the highest rates (*Shmahalo, 2005:47*).

5. **1910-1920** – related to the opening of architecture institute in Kyiv in 1918. Art-industrial institutions also existed in Odesa and Kharkiv. It can be concluded that in Ukraine by the beginning of XX century the infrastructure of art-industrial education had already been developed. In the 20's, a network of state secondary art educational institutions-vocational schools was founded and developed (in Kyiv, Kharkiv, Odesa, Dnipropetrovsk, Luhansk) as well as secondary art -industrial education (Mirhorod and Mezhyhyrsk art and ceramic technical schools, art -industrial schools in Kamianets-Podilskyi, Uman, Hlynsk, Opishnia, educational and production workshops in Krolevets, Dikhtyari, Reshetylivka and other places) (*Kara-Vasylieva, 2006*).

4. The third stage (1930-1990's of XX century):

1. **1930-1950**. By the end of the 1930's, the foundations for activities of art and design higher educational institutions had been laid. The important events were, for example, "A retrospective exhibition of Ukrainian art for the last 30 years" (1935) and "The exhibition of products of Ukrainian crafts" (1936) at People's house. Taking into consideration all the contradictions of the exhibition expositions, they testified about artists' orientation to preserve national identity and uniqueness of both folk and professional art, as well as searches for the independent way of development in the context of involvement in contemporary tendencies of the European cultural process (*Kara-Vasylieva, 2006*).

In 1938 the State Institute of Plastic Arts with 5-years' study was founded in Lviv. The main feature of the educational institution was that all the process of study was divided into two periods – two-year general preparatory department at public school of plastic arts and a three-year special one. At general department students acquired art and technical knowledge combined with practical studios in workshops. The special department embraced departments of decorative painting, decorative sculpture, ceramics, textiles, graphics and advertising as well as varnishing. These departments were meant to prepare students for independent creative work by mastering the technical side of the profession chosen. Former students of the institute noted a remarkable place of such historically tested forms of studios as plein air painting, drawing, study of folk art in the educational process (*Verhunov, 2010 :12*).

Co-educational art-industrial school for hutsul industry was originated in Kosiv. The school comprised the following departments : carpentry and carvings, carpet-making and embroidery as well as weaving (*Noha, 2009: 35*). Considerable support for the development of industrial education was provided by contribution communities such as weaving community (Kosiv), "Hutsul Art "union, "Native school" community, "Dostava" Lviv community. At the initiative of these communities art and craft schools were opened and local craftsmen's exhibits were on display at various exhibitions, especially in Lviv, which was the cultural capital of the region (*Shmahalo, 2006: 172*). Due to the expansion of functioning of the centres of art and craft- industrial schools, the art style, developed at the territory of Halychyna, went beyond the boundaries of the folk one. This style was the basis of Ukrainian art of that time. It was spread in the European cultural space. This can be confirmed by the fact that in the art-industrial school of Vienna Ukrainian-style art projects with elements of applied art were put into life. Within time, the folk art style that had developed in Halychyna, gained recognition alongside European ones (*Synyshyn, 2014: 148*).

2. 1960's – were characterized by the introduction of art-industrial education in a new phase of its development. Neither domestic experience nor foreign one had not been studied by that time. Special design bureaus implemented their first projects, the scientific institutes started systematically conducting researches. Special departments were set up at factories, research institutes and ministries. The problem of the preparation of the qualified specialists could be solved only under the condition of immediate creation of vocational training. Only in the course of professional art education, means and methods of learning developed by the efforts of the individual design practitioners, as well as techniques and methods for the formation of artistic abilities and skills were consolidated and made common asset (*Shabelnyk, 2012*).

3. 1970-1980's There was clear awareness of the specifics of professional art, reconsidering of folk traditions. A significant feature of this period was a widespread application of works of art industry for public buildings decoration, a cooperation with architects at the stage of design and searches for the artistic image of the building with a national identity. The period was quite fruitful in the field of the searches for individual features of professional artists and the development of art industry. The porcelain and faience plants, art glass and ceramic enterprises, new powerful textile industrial complexes started working. Professional artists, graduates of Lviv Institute of applied and decorative arts, Kyiv specialised school of applied arts, schools of decorative arts were employed at these enterprises. In 1971 we have a number of art and production associations with an extensive subsidiary system in the centres of folk art, with a system of home-work and organized product supply and sale: T. Shevchenko association, L. Ukrainka Lviv association, Zh.Liaburb Odesa association, Kharkiv association “Ukraine”, “Vinnychanka”, “Poltavchanka”, Kosiv association “Hutsulshchyna”. This process was facilitated by the decree of 1975 on art crafts and the 80's were noticeable for the rapid development of these crafts. Graduates of art-and- industrial educational institutions simultaneously with the mass production created highly artistic works of art taking into account national traditions (*Kara-Vasylieva, 2006*).

4. 1990's – art-industrial education of this decade was remarkable for its extreme breadth and kaleidoscopy. A change of molding principles occurred: the principles of utility retreated and a kind of “diffusion” of decorative and fine arts was created that gave rise to spatial art where traditional materials such as glass, wood, clay, threads were used as means of molding. Artistic education of the 90's was a multifaceted phenomenon which was developing alongside all-European and world's art process, where the category of the beautiful remained defining. Artists were finding new ways and means of embodying the aesthetic-emotional expressiveness with the help of innovative shaping, specifics of visual interaction with the environment using the latest technology and materials (*Kara-Vasylieva, 2006*).

5. The fourth stage (the end of XX -the beginning of XXI century)

The modern period the history of Ukraine is characterized by a market structure of economy, activation of foreign economic relations, entry into the system of fierce competition in production and services. (*Verhunov, 2010: 15*). In these circumstances, not only utility, but also aesthetic quality was of great relevance as well as product design as a reason for consumer success. In modern conditions the existing system of specialized art education was looking for the new ways to meet the demand for art and design specialists (*Pobirchenko, 2013:137*).

6. Conclusions

So, art- industrial education was a natural result of socio-economic development of Ukraine. Since the middle of the eighteenth century the isolated educational establishments for the preparation of draftsmen for factories and manufactories had started to appear. Consequently, it led to the formation of a network of institutions of art- industrial education of the late nineteenth – the early twentieth centuries. Thanks to the extension of the functioning of art and craft-industrial schools the artistic style at the third stage began to go beyond the folk one. In the 60's only in the course of professional art-industrial education, the means and methods of training developed by the efforts of individual design practitioners, as well as techniques and ways of forming artistic skills were consolidated and made common asset. In the 1970's-1980's graduates of art-industrial educational institutions simultaneously with the mass production created highly artistic works of art based on national traditions. Art-industrial education of the 90's was determined as a multifaceted phenomenon that was developing alongside all-European and world's art process, where the category of the beautiful remained defining. As a result, the following steps in the development of art-industrial education of Ukraine can be singled out: the first stage (XVIII -the middle of XIX century); the second stage (the end of XIX –the beginning of XX century); the third stage (1930's-1990's); the fourth stage (the end of XX – the beginning of XXI century). So, the experience of the previous centuries has shown the importance of art-industrial education in the 21st century. The development of industrial education in Ukraine at the present stage are prospects for further research.

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LITERARY JOURNALISM: COMMUNICATION TACTICS OF DIFFERENT DIALOGUES IN ENGLISH CONTENT

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Summary

The article spotlights the issues of the English-speaking literary journalism, as a direction of non-fiction, blending literary styles and narrative techniques, giving the exact information, while composing features, opinion articles, chronicles, travel blogs, listicles, biographies, essays, and other articles. The article tackles the communication strategies and tactics, stylistic and literary devices, applied in literature, and respectively in journalism and nonfiction by English-speaking authors. Among the smorgasbord of literary devices used in American and British literary journalism, it is vital to underline the importance of a dialogue, a strict chronological structure, some status details, and the text presentation from the third-person perspective.

In the article, the dialogue is regarded in the classical meaning as communication and exchange of information or conversation in written or oral form between two or several people, as well as a literary or theatrical form that presents such exchange.

The content analyses of American and British mass media, as well as their monitoring and empirical identification of active types of dialogues, transmitting from American and British literature into the literary journalism, belong to the key methods of research and further analysis.

As a result of the scholarly survey, sixteen types of dialogues, leading to the better plot outlining were determined, the employment of which could diversify and improve the quality of English content made by Ukrainian students, journalists and nonfiction writers. The article characterizes and gives examples of the following types of dialogues, which are apt to the contemporary English speaking literature and non-fiction: Cryptic Conversation; Cultural Contrast; Appeal to family wisdom; Trial balloon dialogue; Blatant Lies; Con artist lies dialogue; Constant cheering; Berate and switch; Casual danger; Bread, Eggs, Milk, Squeak; Derailed Train of Thought; Sliding into Gibberish; Digging Yourself Deeper; Volleying Insults; Insult backfire; Contradiction of Arguments' Dialogue.

The strategies of cooperation, confrontation, manipulation and entertainment are singled out as the main communication strategies for the majority of determined dialogues.

Keywords: English textual content, literary journalism, literary devices, dialogue, communicative tactics, stylistic figures, communicative strategy, etc.

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1. Introduction

H. Hornmoen and S. Steensen affirm that interview entered American journalism in the 1830s. Founded on dialogical communication, it advanced the tabloid and penny press in the time of the Pre-objectivity era. During the time of the Objectivity era, from 1914 till the 1960s, it transformed into a method of many journalistic cultures (*Hornmoen, Steensen, 2014*).

Literary journalism, initiated in the Period of the New Journalism era, it was in the 1960s, as T. Wolfe and E.W. Johnson assert, was built on four main literary devices: dialogue, scene-by-scene construction, status details and third-person narrative (*Wolfe, Johnson, 1975*). Since that time different types of literary dialogues began infiltrating in journalistic writing including editorials, opinion articles, listicles, literary reportage, travelling blogs, book reviews, essays, biographies, and other blended forms.

The Digital era of journalism, with the wide incursion of social networks, just erased the edges between colloquial speech, literature and journalism, breaking the flood locks to more and more varied variants of dialogues.

Accepting the classical structure classifications of dialogues on directed (two persons engaged) and misdirected (three or four persons engaged, etc.), modulated (with minor points, retrospections, and observations), and interpolated options (insertions, interpretations, and explanations, etc.) (*Thai, 2017*), in this article, we dwell our attention on dialogue types having diverse communicative goals and using communicative tactics, which could be determined in the present-day American and British literature and journalism.

At the same time, we identify the dialogue traditionally as a literary or journalistic technique in which two or more persons take part in conversations with each other. It is a conversational discourse about the same theme.

While regarding dialogues within communicative and stylistic frames, we indicate that D. Levy defines the communicative strategy as “any strategy is a cognitive process, in which a sender correlates his or her communicative goal with some definite language expression” (*Levy, 1979:19*).

In our opinion, a communicative strategy of literary discourse as well as journalistic discourse could be defined as the process of formation and application of some well-outlined communicative goal, which is set because of some efficient influence and getting the feedback of an audience.

Under communicative tactics we recognize the set of language means (typically stylistic tools) which lead to some effect and the ways of realization of some well-defined strategy.

Our scientific survey of American literature and multimedia content permitted us to identify the following types of dialogues.

2. Dialogue Types

1. **‘Cryptic Conversation’ Dialogue.** It is a kind of a dialogue when an addresser uses vague, ominous and enigmatic phrases to confuse an addressee.

In ‘The Lords of Rings’, a fantasy novel written by J.R.R. Tolkien, Frodo tells to Gildor, “*And it is also said, ‘Go no to the Elves for counsel, for they will say both no and yes’*” (*Tolkien, 1954:105*). Gildor answers that Elves are cryptic because they think that to give clear tips is dangerous, and it is better for people to figure things out for themselves. It is obvious that Elves tend to use double entendre figure while dealing with people reflected in the tactics of ambiguity. It is done within the frames of the tactics of ambiguity when one of the speakers tries to whitewash the exact answer or truth and apply the strategy of manipulation.

In ‘The Matrix Reloaded’, a sci-fi action film, directed by T. Wachowskis, one of the secondary characters called Oracle always gives vague prophesies because she just has only a limited access to the future picture. When Neo asks her about the appropriate choice, she answers, “*You 've already mane the choice. You are here to understand why you have made it*”

(Washowskis, 2003). In this dialogue the tactics of ambiguity is used to confuse the mind of Neo and to streamline it to another route of thought.

2. **‘Cultural Contrast’ Dialogue.** It is type of a dialogue when one culture is displayed as a splendid sample of advance and amelioration, making a ‘stealth’ innuendo that other cultures are not so high. At least partly, such dialogue represents a mixture of manipulation and confrontation strategies.

While debating with Emile Mennens, a Belgian anti-corruption official from EU, N. Athanasopoulos, a Greek politician, remarked, *“When we Greeks were building Parthenons, you barbarians were still eating acorns”* (Nicholas, 2020). In this remark, N. Athanasopoulos hinted that Greek culture is the most ancient and the most respected in Europe. The tactics of insult, emotional appeal and persuasion are applied within the strategy of confrontation here.

Practically in all novels about Harry Potter, there is a cultural opposition between the British wizards and common muggles. It is underlined that wizards are smarter and more advanced.

“Harry Potter: “Don't let muggles get you down.”

Ron: “There is no way they'd let me be a Death Eater!” said Ron indignantly.

Harry: My whole family are blood traitors! That is as bad as Muggle-borns to Death Eaters! And they would love to have me,” said Harry sarcastically (Rowling, 2010:240).

In this dialogue we can notice the use of the tactics of emotional appeal and persuasion within the strategies of cooperation with magicians and confrontation with muggles.

3. **‘Appeal to Family Wisdom’ Dialogue.**

It is a type of dialogues, the communicative goal of which is to convince the addressee or the audience using some wise (sometimes humorous) quotation or saying of parents or grandparents of the addresser.

In all societies parents and grandparents are respected. It is not surprising that in literature as well as in journalism many people in their dialogues remember what they were told by their Moms, Dads, Grandmothers and Grandmothers.

In ‘Forest Gump’, a novel written by W. Groom one of the main characters says: *“My momma always said life was like a box of chocolates. You never know what you're gonna get”* (Groom, 1986:25). In difficult situations he thinks back to his mother’s advice and tries to put it into practice to solve a problem.

In the present-day mass media, this type of dialogue is also widespread, so in his interviews President of the USA, Joe Biden, often remembers his father and his words, especially frequently he quotes the following phrases, *“Never complain, never explain”* (Colbert, 2020). *“My Dad always said, ‘Champ, the measure of a man is not how often he is knocked down, but how quickly he gets up”* (Colbert, 2020). Through the tactics of integration and persuasion, emotional appeal and informing, J. Biden shapes the strategy of cooperation getting the powerful feedback of his supporters.

4. **‘Trial balloon dialogue.’** It is a type of dialogue where one of speakers expresses some idea, which could be original, unusual, radical, or even extreme, to test the opinion of the second speaker. The communicative goal of such dialogue is to check the reaction of the addressee or the public opinion of some audience if he or she is a politician.

Being irritated with thorny questions of the press, D. Trump remarked, *“Disgusting press writes what it wants”* (Ben-Ghiat R., 2020). He did it to check the reaction of mass media and multimedia community on his implied idea to raise state control of independent journalists and editions behaving in a too free way. In this case, D. Trump applies the tactics of affront and control within the strategy of confrontation.

Joe Biden also was characterized with throwing trial balloons in 2016 and 2017. Being asked about his intention to be nominated for the presidency in 2020 he answered evasively, “*I am not closing that door, I have been around too long,*” he told the ‘Today’ show in 2017 (Kurz, 2020). In this response, J. Biden applies the tactics of control and ambiguity within the strategies of manipulation and cooperation.

5. **‘Blatant Lies’ Dialogue.** It is a dialogue variant where one of speakers resorts to obvious lie to worm out of a difficult situation.

In ‘Gladiator,’ a sci-fi novel written in 1926 by P. Wylie, the protagonist named Hugo Danner, being asked by his Army bosses about his supernatural forces, did not tell about the medical experiments of his father, he just answered, “*I am from Colorado*” (Wylie, 2009:43). Using the tactics of lies within the strategy of manipulation, he deceived his superiors to avoid any problems.

In ‘Harry Potter and the Philosopher's Stone,’ a fantasy novel written by Rowling J.K., Harry Potter got interested in the images seen by Dumbledore in the Mirror of Erased. The Professor affirmed that he saw “*a pair of thick, woolen socks*” (Rowling, 1997:115). However, there was Professor’s dead sister who got alive once again. Dumbledore said just a part of truth, trying to dodge difficult questions of Harry. So resorting to the strategy of manipulation, Dumbledore applies the tactics of reticence together with the tactics of lies.

6. **‘Con Artist (Impostor) Lies’ Dialogue.** It is a ‘type of dialogues when one of speakers employs actor's lie or impersonation trying to deceive his or her addressee.

In ‘Beverly Hill's Cop’ (1984), an action comedy film made by M. Brest, Axel, the protagonist of the film, played the fool, convincing the prestigious hotel receptionist that he was a journalist: “*Don't you think I realize what's going on here, miss? ... I'm not some hotshot from out of town, I'm a small reporter from "Rolling Stone" magazine that's in town to do an exclusive interview with Michael Jackson that's gonna be picked up by every major magazine in the country. I was gonna call the article "Michael Jackson Is Sitting On Top of the World," but now I think I might as well just call it "Michael Jackson Can Sit On Top of the World Just As Long As He Doesn't Sit in the Beverly Palm Hotel 'Cause There's No Niggers Allowed in There!"*” (Brest, 1984). Axel got what he wanted to get— a top-rated hotel room. His ‘Cons Artist Lies’ shaped with antithesis (*some hotshot – a small reporter*), hyperbole (*interview...be picked up by every major magazine in the country*), bathos (*niggers*) and gradation, turned out to be successful. Axel applies the communication tactics of emotional appeal, lies and commiseration though evoking sympathy towards him. These tactics are followed within the frames of the strategy of manipulation.

7. **‘Constant-Cheering’ Dialogue.** It is a type of dialogues when a speaker talks as if he or she always cheers in common conversation. It could testify the appliance of the strategy of entertaining as well as the strategy of manipulation. Though, it could be appropriate or inappropriate.

In ‘Whose Line Is It Anyway?’, an American comedy TV show, there was such episode: “*Greg Proops: Grandpa's dead! Gimme a D! Gimme an E! – Come on! Where 's your enthusiasm? Ryan Stiles: Vasectomy! Vasectomy! Clip clip clip!*”

Wayne Brady: Okay! Somebody's going to the electric chair! Gonna fry! Gonna fry! Somebody's going to the electric chair! Gonna – Come on! Say What? Come on! Come on!” (Peterson, 2007). In this fragment of discourse, ‘Constant Cheering dialogue’ looks like a mixture of black humor, rhyme, anaphora, and gloat. It does not look appropriate. The tactics of comism turns out to be floppy.

In ‘Fairy Oddparents’ (1998-2001), an American animated TV series, created by B. Hartman there is a dialogue between Vicky, a cheerleader and Timmy, an athlete.

“Vicky. I lie a lot. I cheat in school. I’m scared of cows, love being cruel! I pick my nose when no one looks! I wipe it on my history book!

Timmy: I love cows and doing cheers – ain’t blow my nose the past two years!” (Hartman, 2001).

Vicky, using cheering technique and tactics of comism and affront tried to get illusionary superiority over Timmy. However, employing the same tactics, Timmy overplayed Vicky with her own communication weapon.

8. ‘Berate and Switch’ Dialogue. It is a type of dialogue when an addresser starts scolding an addressee for unfavorable behavior or thoughts and after that suddenly switches to praise and compliment him or her with enthusiasm. Using such types of dialogues, usually a communicant applies the tactics of affront and integration.

In ‘The Siege of Macindaw’, a fantasy book written by J. Flanagan, a knight conquered a group of Skandian pirates. While seeing the behavior of dirty and greasy beards, beer bellies and rough-tongued pirates, at first, Sir Horace expressed his negative attitude, though, later he added, *“They are beautiful”* (Flanagan, 2007:45). The usage of antithesis leads to understanding that Sir Horace needs these pirates to fight on his side. It displays the combined application of the tactics of affront, emotional appeal and praise, within the strategies of cooperation and manipulation.

In ‘Pacific Rim’, an American military sci-fi film directed by G. Del Toro, Marshal Pentecost scolded fighting maneuvers of pilot Becket, calling them break-neck and reckless. However, at the end of his speech he makes a compliment: *“In all of my years of fighting I’ve never... [smile appears on his face]...seen anything like that. Well done”* (Del Toro, 2013). Using a long antithesis as the base of the ‘berate and switch’ dialogue, Pentecost mixes the tactics of affront and integration, claiming that though he was against the methods of fight of pilot Becker, they belong to the same team or fighting side.

9. ‘Casual Danger’ Dialogue. It is a type of a dialogue when in a case of a real danger one of characters starts cracking jokes or giving a sarcastic comment to calm down the others.

In ‘Captain America: The Winter Soldier,’ an American superhero film directed by A. Russo, Black Widow’ tried to convince Captain America to start dating her. She kept cracking dating jokes even during fighting scenes:

“Natasha: [after throwing a man off the roof] How about that secretary who works of the first floor?

Captain America: The one with a lop piercing?

Natasha: Yeah.

Captain America: Yeah...I am not ready for that” (Russo, 2014). In this case, the ‘casual danger dialogue’ is used within the strategies of manipulation and entertaining, applying the tactics of comic ambiguity.

In ‘the Jungle Book’, written by R. Kipling, one day peasants were turned against Mowgli and came to kill him. Akela, an old wolf, resorts to casual danger dialogue, cracking a joke and at the same time calming down Mowgli.

“The old Tower musket went off with a bang, and a young buffalo bellowed in pain. ‘More sorcery!’ shouted the villagers. ‘He can turn bullets. Buldeo, that was thy buffalo.’ ‘Now what is this?’ said Mowgli, bewildered, as the stones flew thicker. ‘They are not unlike the Pack, these brothers of thine,’ said Akela, sitting down composedly. ‘It is in my head that, if bullets mean anything, they would cast thee out”” (Kipling, 2009:78). In this variant, the ‘casual danger dialogue’ is applied within the strategies of cooperation and entertaining, using the tactics of integration, information and comic mockery.

10. 'Bread, Eggs, Milk, Squeak' Dialogue. It is a type of a dialogue, when an addresser while speaking about common things, suddenly uses rude words or reveals his or her shockingly negative intentions.

In 'The War Prayer', a short story written by M. Twain, the prayer starts in a traditional and religious way. However, in a while, it calls to "*help us to tear their soldiers to bloody shreds*" (Twain, 1914). So, the beginning and the end of the prayer is standard, but the middle part is sarcastically twisted. So, in this discourse fragment we see the combination of such communicative strategies as entertainment and confrontation, which are applied through the tactics of affront and comism.

In 'Desperation,' a horror novel written by S. King, a state officer whose soul was caught by a dark creature called Tak, while saying the Miranda rights to a married couple, says, "*I am going to kill you*" (King, 1996:117). Several minutes later he kills the husband. Trough the 'Bread, Eggs, Milk, Squeak' dialogue he resorts to the tactics of informing and intimidation realizing both of them.

11. 'Derailed Train of Thought' Dialogue. It is a type of dialogues when one character becomes so sidetracked by his or her train of thought that he completely forgets about the original topic.

In 'The Celebrated Jumping Frog of Calaveras County', a short story written by M. Twain, the old narrator tells the story with many sidetracks, forgetting the beginning of the story:

"Well, Smiley kept the beast in a little lattice box, and he used to fetch him down town sometimes and lay for a bet. One day a feller a stranger in the camp, he was come across him with his box, and says: 'What might it be that you've got in the box?'

And Smiley says, sorter indifferent like, 'It might be a parrot, or it might be a canary, may be, but it an't it's only just a frog.'

'Well, thish-yer Smiley had a yeller one-eyed cow that didn't have no tail, only jest a short stump like a bananner...'" (Twain, 1867:1). So, applying the tactics of ambiguity and informing, the speaker got lost in his thoughts revealing the tactics of low IQ integration and comism.

In 'Harry Potter and the Chamber of Secrets', a fantasy novel written by J.K. Rowling, Luna Lovegood, a magic reporter, any common conversation finishes with the discussion of the magical equivalents of Loch Ness Monster or Bigfoot (Rowling, 2013). Her 'derailed train of thought' dialogues testify about the application of the tactics of the obsessive idea and the emotional appeal, which are framed with the strategy of cooperation and manipulation.

12. 'Sliding into Gibberish' Dialogues. It is a kind of dialogues when one of the speakers gradually slides into gibberish.

In 'The Rats in the Walls', a short story written by H.P. Lovecraft, there are examples of ancient gibberish like, "*DIV...OPS...MAGNA. MAT,*" and "*P.GETAE... PROP... TEMP... DONA,*" and "*L. PRAEC...VS... PONTIFI... ATYS*" (Lovecraft, 1994:1).

In episode 11 'Golem' of 'Sleepy Hollow' TV series there is such dialogue:

Lt. Abbie Mills: Chopping down a Christmas tree?

Ichabad Crane: Altogether a nonsensical concept. Celebrating Yuletide with a titular display of Lumber.

Lt. Abbie Mills: Wow. Bah humbug to you too, Ebenezer.

Ichabad Crane: That was gibberish.

Lt. Abbie Mills: Scrooge. A Diskensian character. A grump" (Tobin, 2013).

This dialogue relates to 'Sliding into Gibberish' category. Lieutenant Abbie Mills starts mocking at Ichabad Crane using 'Sliding into Giggerish' dialogue technique

resorting to the strategies of manipulation and entertaining through the tactics of ambiguity and comism.

Gibberish words and sentences could be employed by children, learning to speak, and senior people because of age illnesses: “*Cats, dogs, and babies! It's Tuesday! Wishes are hopping and trees are west! Food is sitting while the weather is flying*” (Yourdictionary, 2021). In this case the speakers are just following the tactics of informing and emotional appeal. However, they are mixed with the tactics of displaying age illness logic or childish age immature logic. From the stylistic point of view, it is a kind of funny logic and absurd.

13. ‘Digging Yourself Deeper’ Dialogue. It is a type of dialogues, when an addresser starts informing or explaining something more and more, trying to justify himself or herself, though, quite often, he or she gets the opposite result.

In ‘Get Smart’, an American spy comedy film, directed by L.B. Stern, we can come across the ‘digging yourself deeper’ dialogue: “*Maxwell Smart: I think it's only fair to warn you; this facility is surrounded by a highly trained team of 130 Black Op Snipers. Siegfried: I don't believe you. Maxwell Smart: Would you believe two dozen Delta Force commandos? Siegfried: No. Maxwell Smart: How about Chuok Norris with a BB gun?*” (Gartner, 2008). Applying the strategy of manipulation and the tactics of lies, Max persuades his rival to give up because he is surrounded. The tactics of lies is intended to fool up the opponent, supported with Chuok Norris, a precedent name, and anticlimax (a unit from 130 snipers slides into 24 commandos and after that just one Chuok Norris), and comic word *BB gun* (a gun using BB balls).

In ‘Knights of the Dinner Table’, a comic book written by Blackburn J. R. there is the following dialogue:

“Chad: Awwwwh, c'mon Patty! When I said girl gamers were lame I wasn't referring to you! You're just like one of the guys.

Patty: Like one of the guys? Your character suddenly hears a rustling in the underbush. Roll for initiative.

Tank: Careful, Chad. You're digging that hole deeper and deeper (Blackburn, 1990).

In this dialogue, Chad uses the tactics of justification and amelioration, though it leads to the negative result. His addressee, Patty, feels offended. So, such dialogue technique leads to the strategy of confrontation through the tactics of affront.

In ‘Ravirn’, a collection of sci-fi sort stories, written by K. McCullough, one of the main characters often gets into troubles resorting to such type of dialogues.

His companion Melchior mocks at him because of it:

“Judging from past experience and what little I've heard, I'm thinking you're following the pattern where you start out in a lot of trouble, and then through a series of brilliantly chosen words, make it infinitely worse” (McCullough, 2008). The communicative tactics of ridiculing within the strategy of confrontation is based on ‘Digging Yourself Deeper’ Dialogue technique with clearly shaped antithesis.

14. ‘Volleying Insults’ Dialogue. It is a type of dialogues when one of the speakers, or even both of them, resort to invective communication in a rude informal register.

In ‘Liar Liar’, an American comedy film, produced by B. Grazer, there is the following dialogue, “*Dana Appleton: Your Honor, I object! Fletcher Reede: You would! Dana Appleton: BASTARD! Fletcher Reede: HAG!*” (Grazer, 1997). Such exchange is based on ‘Volleying Insults’ dialogue, leading to a comic effect. It mixes polite and rude lexicon, displaying bathos (a stylistic figure) and the tactics of affront within the strategy of confrontation.

In ‘The Sandlot’, an American sports comedy film, produced by M. Burg, there is such dialogue, “*Phillips: We play on a real diamond, Porter... Ham Porter: Watch it, jerk. Phillips:*

Shut up, idiot! Ham Porter: Moron!!! Phillips: Scab Eater!!!" (Burg, 1993). In this case 'Volleying Insults' is accompanied with climax and bathos (*jerk...idiot! ...moron!!!*). The polite and rude lexical units are mixed again actualizing the tactics of affront and the communicative goal of both speakers to get superiority.

In American politics, in spite of the advance of political correctness, there is a long tradition of the political insult.

John Adams, the second president of the USA called Thomas Jefferson, "*a mean-spirited, low-lived fellow, the son of a half-breed Indian squaw, sired by a Virginia mullatto father*" (Rubino, 2021).

In one of his debates, Donald Trump, the 45th American President, called Hillary Clinton as '*crooked*.' In his turn, Bernie Sanders called Donald Trump as a '*pathological liar*' (Rubino, 2021). In all these cases we can identify the communicative tactics of mockery, insult and emotional appeal within the communicative strategy of confrontation.

15. 'Insult Backfire' Dialogue. It is a kind of dialogues when an addresser employs the invective lexicon and an addressee resorts to polite communication acts.

In 'Hocus Pocus', an American fantasy horror comedy film, produced by S. Haft, there is the following dialogue, "*Billy: Go to hell! Winnie: I have been there, thank you. I find it quite lovely*" (Haft, 1993). The first speaker applies the stylistic figure bathos and the tactics of affront, while the second speaker resorts to the tactics of integration and comism. From the stylistic point of view, it looks like irony.

In 'Casino Royale', an American spy comedy film, produced by C. K. Feldman, we can come across the following dialogue: "*Lavi: You are crazy. You are actually crazy! Allen: They called Einstein crazy!*" (Feldman, 1967). In this dialogue '*Insult Backfire*' is intensified with climax and oxymoron (Einstein, the brilliant mind, and...*crazy*). While responding the rude remarks of Lavi, Allen prefers to apply the tactics of comism.

16. 'Contradiction of Arguments' Dialogue. In this type of dialogue, speakers contradict each other. The communicative goal of such dialogue is to neutralize the arguments of the second speaker. People are different, opinions could be completely different too. It could be displayed in emotional fiction and non-fiction dialogues.

In 'How Music Works: The Science and Psychology of Beautiful Sounds, from Beethoven to the Beatles and Beyond' J. Powell presents such dialogue between two famous singers, Anton Schwarz and Luigi Streptococi,

"Hey, Luigi, you are singing every note flat."

"No, Anton, it's you – you are singing sharp. I know because I truly have perfect pitch." *"No you are wrong."* *"No you are wrong."* *"Flat, flat, flat."* *"Sharp, sharp, sharp"* (Powell, 2011). In this fragment of discourse, two singers utilize the tactics of emotional appeal, persuasion, and affront, within the frames of the strategy of confrontation.

In American mass media the 'Contradiction of Arguments Dialogues' technique is a usual phenomenon. The first debate between Donald Trump and Joe Biden was practically based on it, "*Joe Biden: You're the worst President of the USA. Donald Trump: I've done more in 47 months than you in 47 years. Donald Trump: He called the military – stupid bastards. Joe Biden: I have never called them so...*" (Trump, Biden, 2020). Almost all argument presented by Joe Biden were bitterly criticized by D. Trump and on the contrary.

In this dialogue the strategy of confrontation is used by both high-rank politicians who resort to the tactics of affront insulting each other, using hyperboles and overstatement. Besides, J. Biden applies the tactics of justification, trying to verify the truth.

After monitoring and identifying 16 types of dialogues with informal American names, we can classify the communication strategies and tactics within the frames of which these dialogues are employed.

The communicative strategy of manipulation may be achieved through several tactics. It could be applied through the tactics of ambiguity, persuasion, wrong logics, lies and tactics of reticence as well as the tactics of comism.

The communicative strategy of confrontation could be realized basically through the tactics of affront, the tactics of ridiculing (mockery), the tactics of persuasion, and the tactics of wrong or funny logics. It is typically used in American literature and journalism in the form of sarcastic, satiric and black humor remarks and dialogues.

The communicative strategy of cooperation could be reached through the tactics of integration, emotional appeal, comism, control over the situation, persuasion, social approval with adherence to moral standards, and informing.

The communicative strategy of entertaining could be achieved through the tactics of emotional appeal and comism in its four variants: humor, satire, irony and sarcasm.

Table 1

The application of dialogues in BBC and CNN feature articles

	CNN	BBC
Total number of featured stories (articles)	26	28
Ratio: Dialogues used / No dialogues	19/7	23/5
Dialogues used in percent	73%	82%
Dialogues with strategies of cooperation (percent from all dialogues)	9 (47%)	9 (35%)
Dialogues with strategies of cooperation and confrontation (percent from all dialogues)	7 (36%)	9 (35%)
Dialogues with strategies of cooperation and humorous entertainment (percent from all dialogues)	3 (17%)	5 (30%)

Besides, our scientific research touched upon the issue of the application of dialogues in modern mass media of the USA and Great Britain. We decided to conduct content analysis and to monitor the samples of feature articles (stories) posted by CNN and BBC during one day. We chose January 19, 2021 (*CNN, BBC, 2021*). According to our survey from 26 CNN feature stories and 28 BBC feature stories relating to such sections as business, travelling, politics, entertainment and sport, 73% of CNN feature stories and 82% of BBC feature stories contained dialogues. The communicative strategy of cooperation is used in 47% CNN and 35% BBC feature stories with dialogues. The communicative strategy of cooperation and confrontation is employed in 36% CNN and 35% BBC feature stories, and the communicative strategies of cooperation and humorous entertainment in 17% CNN and 30% BBC feature stories respectively.

3. Conclusions

As a result of the conducted scientific survey based on the monitoring of American multimedia, sixteen types of dialogues with different communicative goals were determined. They are the following: Cryptic Conversation; Cultural Contrast; Appeal to family wisdom; Trial

balloon dialogue; Blatant Lies; Con artist lies dialogue; Constant cheering; Berate and switch; Casual danger; Bread, Eggs, Milk, Squeak; Derailed Train of Thought; Sliding into Gibberish; Digging Yourself Deeper; Volleying Insults; Insult backfire; Contradiction of Arguments' Dialogue. They are used in fiction and gradually penetrate in non-fiction testifying the blurring the clear-cut line between literature and journalism and the offence of literary journalism trends.

The content analysis of BBC and CNN feature stories posted during one broadcasting day showed that the majority of them (73% of CNN feature stories and 82% of BBC) use dialogues. The main communicating strategies applied in them are the communication strategies of cooperation, confrontation and entertainment (humorous).

Monitoring, identifying and classifying the modern types of dialogues, used by English-speaking authors and journalists in their fiction and non-fiction works, belong to the promising area of the scientific survey of those who specialize in literary criticism, philology and journalism.

We think that this article will inspire Ukrainian scholars and practitioners to meet the new literary journalism challenges and to come up with breakthrough ideas relating to it. Advanced knowledge of this material would lead Ukrainian students and journalist to better shaping of English multimedia content.

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ACTANTS OF THE THEMATIC GROUP OF PREDICATES OF IRRATIONAL STATE ACQUISITION IN THE UKRAINIAN, ENGLISH AND GERMAN LANGUAGES

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Summary

The study presents predicate-actant modeling as one of the means to research the semantic structure of irrational vocabulary in the Ukrainian, English and German languages. The author singles out the group of predicates to denote the process of irrational state acquisition in chosen languages. The research specifies the notion of predicate and actant in the aspect of functional syntax. The paper reveals semantic roles of participants of irrational situation. The study researches actants of the mentioned thematic group of predicates according to their syntactical expression, communicative rank and taxonomic class in semantic structure of irrational vocabulary in each of the compared languages. The author states predicate-actant relations for mentioned thematic group of predicates within the irrational situation. The paper defines following research of semantic structures of irrational vocabulary in comparative aspects.

Keywords: predicate-actant relations, predicate-actant modeling, functional syntax, semantic role, syntactical role, syntactical expression, communicative rank, taxonomic class.

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1. Introduction

Nowadays functional syntax is presented as a separate linguistic direction focused on the researching semantic roles and elements of the situation in a semantic structure. Foreign (A. Mustaioki, Yu. Apresian, O. Paducheva) and Ukrainian (O. Demenchuk, H. Valihura) linguists research functional syntax in their papers. Involving the material of related and unrelated languages these papers aim not only to define predicate-actant relations between the participants and elements of some situation but also to present specific features of human's cognitive activity. The importance of the research deals with anthropocentric trend of linguistic studies of related and unrelated languages in modern linguistics.

2. Materials and methods

The authors' findings within functional syntax reveal high interest of the researchers in a sentence semantic structure studying to describe syntactical and super-syntactical constituents (I. Susov), examine methodological fundamentals of predicate typology development (L. Krasnova), outline up-to-date approach to the analysis of semantic structure of polysemantic word (A. Shumeikina), present correlations of grammatical and semantic characteristics of a sentence (N. Shvedova), explore syntactical means of real situation representation (Z. Sabitova) and others.

Along with that the researchers of functional syntax study specific lexical and semantic groups of words in different languages to study semantic models of the sentences with predicates

of creation in the Russian languages (N. Ruzhentseva), semantic and syntactical structure of sentences with illocutionary predicates in the Ukrainian language (H. Valigura), actant-predicate relations of telescope language units basing on the French language (N. Smirnova, D. Spiridonov), development of semantic and syntactical typology of knowledge predicates in the English, Russian and Ukrainian languages (O. Bohovyk) and others. The authors' findings of this direction present the importance of papers in functional syntax not only with the aim to research predicate-actant models inside the language but in the comparative aspect as well.

The study presents comparative actants analysis of predicates of thematic group to define the process of irrational state acquisition. This group demonstrates the process of gradual acquisition ("feeling") of some information in the irrational way. In the Ukrainian, English and German languages the subject of the study is presented with such predicates as, cf. ukr. *передчуваю, пречуваю, прочуваю, прочуватися, передчуватися, угадуваю*; eng. *feel, intuit, predict, anticipate, presage, sense*; ger. *voraussehen, orakeln, prognostizieren, wittern, spüren, verspüren*.

The aim of the study is to characterize the actants of thematic group of predicates to define "the process of irrational state acquisition" in the Ukrainian, English and German languages.

The aim is achieved by the solution of such tasks as:

- to specify the notion of the predicate and actant in the aspect of functional syntax;
- to characterize actants of researched thematic group of predicates in the comparative aspect;
- to describe specific features of predicate-actant relations of irrational predicates in researched languages;
- to identify the prospects of the following research of irrational vocabulary.

The material of the research is presented with 31 verbs (12 from the Ukrainian language, 14 from the English language, 5 from the German language) that belong to the semantic class of irrational vocabulary and were selected by continuous sampling method.

It was chosen descriptive, contrastive and modeling methods as the basic ones in the research. Descriptive method gives a possibility to systematize and generalize collected information and factual material. With the help of contrastive method it was analyzed special features of presentation of predicate-actant relations in the Ukrainian, English and German languages. To develop predicate-actant models it was used the modeling method. This system of methods provide conclusions validity and objective evidence.

3. Results

A. Mustaioki states that the description of model of functional syntax bases on semantic structures that present the state of affairs and comments of that one who speaks about this state of affairs (*Mustaioki, 2006: 412*). The central element of the core semantic structure is the core that consists of predicate and actants. The author interprets the notion of predicate as a logic constituent of the utterance that concerns with the meaning of this utterance and defines the relation of the subject with other constituents of semantic structure. The analysis of predicates seems to be impossible without the analysis of the accompanying actants. The author interprets the actant as a situation participant that fills the valence of predicate according to some semantic role and has the relations appropriate to this predicate. The study presents such basic participants of irrational situation as Experiencer, Stimulus and Content. Experiencer is considered as a subject of irrational state that "feels" irrationality in some demonstrations (guess, impulse,

instinct, intuition): cf. ukr. *Високо-високо в глибинах блакиті викупуються реактивні, небо від них аж дзвенить, і хоч сонця ще й нема, ще десь воно за вигином планети, а ці хлопці й дівчата вже передчують його, вже бачать його вгори, у вранішнім першій промінні, що барвять білий летючий метал (KUM);* eng. *Ludens, arriving, would have to intuit what was required (BNC);* ger. *Hier witterten die Aufklärer verständlicherweise höchste Gefahr (DWDS).* Stimulus participant may be presented with different types of intellectual objects that influence on the subject of irrational situation, sense organs, and mind: cf. ukr. *Які там ще є на світі люди, що можуть передчувати мою появу там чи там? (KUM);* eng. *Can you guess what this data set is? (Translate.ru);* ger. *Möchte jemand raten, welche das ist? (Translate.ru).* The participant Content is interpreted as some information (message) that is perceived (felt, comprehended, guessed) by Experiencer of the situation that processes this information in some way: ukr. *Підсвідомо я здогадувався, що це побачення затіяно, аби вивести мене з рівноваги (CUM);* eng. *Can you guess what this data set is? (Translate.ru);* ger. *Möchte jemand raten, welche das ist? (Translate.ru).* The study characterizes each of the semantic roles of the situation giving appropriate examples.

In the situation of “the process of irrational state acquisition” Experiencer occupies the position of the subject: ukr. *Ангеліна ніби передчувала : тільки-но вона дала лад своїй скуйовдженій зачісці, як розчинилися двері і на порозі став Платон (KUM).* This actant may be syntactically expressed with:

– singular or plural noun: ukr. *Поет бачив завтрашній день без кріпаччини, передчував «сім'ю вольну, нову», був ясновидцем відродження, предтечею грядущої революційної бурі (CUM);* *Сусіди давно передчували недобре (Breaking news);*

– personal pronoun: ukr. *Били копитами й шарпалися, прями вухами, чуючи тими вухами рев літаків і не дуже-то далекі вибухи бомб, нервувалися, а деякі без причин жалибно іржали, позираючи навколо, – вони без сумніву угадували своїм інстинктом близьку смерть (CUM);*

– defining pronoun: ukr. *Тепер уже всі, не тільки молода, прочували лихо (CUM);*

– negative pronoun: ukr. *Того ранку ніхто не передчував біди. Хохуля Хомка прокинулася разом з сонцем і побігла шукати щось на сніданок, радіючи теплим промінням (Zvirjata);*

– personal form of the verb: ukr. *Посилаю Вам своє останнє оповідання і передчую, що будете лаяти мене за нього, бо я й сам себе лаю [CUM].*

According to the communicative rank such participant of the situation belongs to the Centre zone of attention. The author characterizes the Experiencer presenting such taxonomic classes:

– ANIMAL: ukr. *Його наближення передчували звірі й птахи (CUM);*

– PERSON: ukr. *Барбаров інстинктом угадував щось недобре й тому весь час добивався, щоб його перевели куди інде, скажімо, в одиночку (CUM);*

– BODY ORGAN: ukr. *Рушила підвода, а Олена услід чоловікові та сину довго і сумно дивилася, наче передчувало серце її, що станеться у Мньові (CUM);*

– JOB: ukr. *І все ж художник якимсь внутрішнім, якимсь «шостим» почуттям вгадує, що ці картини їй подобаються менше (KUM).*

In the English language in the situation of “the process of irrational state acquisition” Experiencer occupies the position of subject as well: eng. *Only Mr Hattersley could prophesy about the past and still get it wrong (BNC).* Syntactically such participant may be expressed with:

– singular or plural noun: eng. *Does Mr Bush foresee some sort of crisis during which his image will suffer unless boosted? (BNC);* *Dreams can foretell the future (BNC);*

- personal pronoun: eng. *She* guessed the answer straight away (BNC);
- defining pronoun: eng. *This* was not entirely a semantic shift, and was to foreshadow a much wider change in attitude to the relationship between the state and the economy, which was to be felt throughout the 1980s (BNC);
- negative pronoun: eng. *Nobody* felt the board members needed to know about the problem (Dien Dan).

According to the communicative rank in the English language as it was in the Ukrainian language the Experiencer belongs to the Centre. The study divides the Experiencer of this group of predicates according to such taxonomic classes:

- PERSON: eng. *англ.* It is often amazing how the most insignificant contributor to a project can foresee the subtlest problem and devise a solution (BNC);
- FEELING: eng. *Intuition* seems like a mysterious, magical thing and it may feel like it's not possible to measure or recognize as it arises (BNC);
- NATURE POWER: eng. *Nature* seems to portend no danger (BNC);
- IMAGE: eng. *Dreams* can foretell the future (BNC).

In the German language in the situation of “the process of irrational state acquisition” Experiencer occupies the position of the subject as well: ger. *Eigenartige Veränderungen seines Vaters spüre er, sagte Hawa, das sei doch nicht seine Art, förmlich rachsüchtig benehme er sich* (DWDS). Syntactically this participant may be expressed with:

- singular or plural noun: ger. *Der Melancholiker* sieht die Welt durch eine schwarze Brille, wittert überall Unheil, fühlt sich stets vom Schicksal benachteiligt und ist immer geneigt zu glauben, dass morgen die Welt untergeht (DWDS); Hier witterten die Aufklärer verständlicherweise höchste Gefahr (DWDS);
- personal pronoun: ger. *Eigenartige Veränderungen seines Vaters spüre er, sagte Hawa, das sei doch nicht seine Art, förmlich rachsüchtig benehme er sich* (DWDS);
- interrogative pronoun: ger. *Wer* hätte da noch Böses voraussehen mögen (DWDS);
- negative pronoun: ger. *Am Ende seiner ausgedehnten Recherchereise kommt von Boehm zu der Erkenntnis: „Niemand kann vorhersagen, was die Zukunft wirklich bringt“* (DWDS);
- indefinite-personal pronoun: ger. *Schließlich spürt man trotz dieser Bedenken die Lust am Abenteuer, am Experiment* (DWDS);
- relative pronoun: ger. *Schließlich spürt man trotz dieser Bedenken die Lust am Abenteuer, am Experiment* (DWDS).

According to the communicative rank Experiencer belongs to the Centre zone of attention. The paper presents such taxonomic classes of the participants:

- PERSON: ger. *Plötzlich steht irgendwo ein Mann auf, nicht selten auch eine Frau, hat Gesichte und Gotteserscheinungen, wahrsagt, tut Wunder, heilt Kranke, tut Gegner in den Bann und übt eine erstaunliche Wirkung auf die Massen aus* (DWDS);
- BODY ORGAN: ger. *Die Seele* fühlt von Anfang an: Wie pränatale Erfahrungen unsere Beziehungsfähigkeit prägen (Bettina).

In the Ukrainian language in the situation of “the process of irrational state acquisition” Stimulus occupies the position of the direct object: ukr. *Віельгорський угадував думки схвильованого автора* (CUM). Syntactically this participant may be expressed with:

- singular or plural noun: ukr. *Серце передчувало нешастя* [КУМ]; *Я вгадував думки, події, фрази* (author's);
- substantive adjective: ukr. *Я передчував недобре* (author's).

According to the communicative rank the actant Stimulus belongs to the Centre. Actant Stimulus belongs to such taxonomic classes:

– EVENT: ukr. *У ті роки цей фільм був знаменням епохи – глядач вмів думати і передчувати зміни, вірити в зміни і бачити в інтелектуалах та дисидентах провісників змін (CUM);*

– PERSON: ukr. *У такій грі на випередження немає нічого надзвичайного – Антонича у Львові передчували... (CUM).*

In the English language the actant Stimulus is presented in such way: eng. *Do they augur victory or defeat for the Israelites? (BNC).* Syntactical role of the actant Stimulus may be presented with the direct object. Syntactically such participant may be expressed with:

– singular and plural noun: eng. *They foretell events, providing a sort of rationale for the extraordinary exploits (BNC); Her appearance here would presage a shipwreck, the candle lighting the way for pall bearers who would follow (BNC);*

– defining pronoun: eng. *In the event, Wilson opted for the cosmetic exercise, but no one could foretell this in February 1974 (BNC);*

– relative pronoun: eng. англ. *One key feature of her method was to differentiate between (1) what we know; (2) what we can guess or infer... (BNC);*

– subordinate noun clause: eng. *Are you inferring (that) I'm not capable of doing the job? (BNC).*

According to the communicative rank this participant of the situation is considered as an Object that belongs to the Centre zone of attention. Actant Stimulus is also characterized with such taxonomic classes as:

– IMAGE: eng. *The chief stylist at General Motors, Harvey Earl, paid a visit to an air force base where, seeing the new twin-tailed fighters, he was inspired to 'intuit' the automobile shape of the future – twin tail fins (BNC);*

– EVENT: eng. *You're one lousy prophet, too. You couldn't even prophesy your own death, when it was standing right in front of you [BNC].*

In the German language in the situation of the process of irrational state acquisition the actant Stimulus occupies the position of direct object: ger. *Sie spürt ein leichtes, nicht unangenehmes Frösteln an ihrem Körper (DWDS).* Syntactically such participant of the situation may be expressed with:

– singular or plural noun: ger. *Wir reden, als ließe sich ein Schicksal vorausbestimmen und mit gutem Verständnis zusammenbauen (DWDS); Nach einigen Zwischenfällen entdeckt er, dass man mit dem Ring Ereignisse voraussehen und Gedanken lesen kann (RC);*

– personal pronoun: ger. *Es wird noch einmal schneien, in diesem März, er kann es in den Knochen spüren, ein frostiges, unangenehmes Prickeln (DWDS);*

– defining pronoun: ger. *“Spürst du das?”, fragt Hans plötzlich, “da ist Elektrizität in der Luft! Lass uns lieber umkehren” (DWDS).*

According to the communicative rank the actant Stimulus belongs to the position of Object that is in the Centre zone of attention. In the German language the author outlines such taxonomic classes for the actant Stimulus:

– ВІДЧУТТЯ: нім. *Du wirst es sicher gespürt haben, es ist ein ausgesprochen unangenehmes Gefühl (DWDS);*

– FEELING: ger. *Du wirst es sicher gespürt haben, es ist ein ausgesprochen unangenehmes Gefühl (DWDS);*

– EVENT: ger. *Eigenartige Veränderungen seines Vaters spüre er, sagte Hawa, das sei doch nicht seine Art, förmlich rachsüchtig benehme er sich (DWDS);*

– BORDER: ger. *Diese rote Linie muß man erraten und darf sie niemals übertreten* (DWDS);

– IDEA: ger. *Als hätte er ihre Gedanken erraten* (DWDS).

The author singles out the other participant for the researched group of predicates that is presented as the actant Content. In the process of irrational state acquisition this actant occupies the position of indirect object: ukr. *Мабуть, підсвідомо здогадуючись про мої почуття, мовчки курить і більше не дістає розмовою* (CUM). Syntactically such participant of the situation may be expressed with the subordinate noun clause: ukr. *Підсвідомо я здогадувався, що це побачення затіяно, аби вивести мене з рівноваги* (CUM).

According to the communicative rank such participant is presented as a Periphery. The paper singles out such taxonomic classes for the actant Content:

– STATE OF AFFAIRS: ukr. *Ніби й сам підсвідомо здогадувався про реальний стан справ в нерухомоті й банках, але лише читання форуму остаточно уберегло від необдуманих покупок та подальшого тримання депозитів та гривні* (Forum.Domik.Ua);

– IMAGE: ukr. *Він ще не знав, що це і є любов, яка повільно розгорялася у його серці, та вже підсвідомо здогадувався, що ця пекуча ніжність надії та туза за домівкою, за спільністю зі своїм народом і радістю від зустрічі з ним стають його єством* (Bonzels, 2013: 24).

In the English language in the situation of “the process of irrational state acquisition” it is singled out the participant Content that occupies the position of indirect object: eng. *Can you guess what this data set is?* (Translate.ru). Syntactically actant Content may be expressed with:

– subordinate noun clause: eng. *Perhaps the Germans might have guessed that Normandy was the real invasion site* (Translate.ru);

– subordinate adverb clause of place: eng. *And so dispersed, I can't make a guess where he lives* (Translate.ru);

– subordinate adverb clause of reason: eng. *Of course, it is not difficult to guess why Putin preferred Trump to his opponent, former Secretary of State Hillary Clinton* (Translate.ru).

According to the communicative rank the actant Content is presented as a Periphery. The paper characterizes this participant according to the such taxonomic class:

– INFORMATION: eng. *And so dispersed, I can't make a guess where he lives* (Translate.ru).

In the German language in the situation of “the process of irrational state acquisition” the participant Content occupies the position of indirect object: ger. *Möchte jemand raten, welche das ist?* (Translate.ru). Syntactically this participant may be expressed with:

– singular or plural noun: ger. *Frankreich werde überdies je ein Dutzend Seeoffiziere und Piloten aus Nicaragua ausbilden; der Rest lasse sich erraten* [DWDS]; *Und genau das ist der springende Punkt. Wünsche von den Lippen lesen = Wünsche erraten* (Bred, 2011);

– subordinate noun clause: ger. *Und raten Sie was wir in dem Angriffscodex gefunden haben?* (Translate.ru).

According to the communicative rank the participant Content is presented as a Periphery. The author characterizes the actant Content according to such taxonomic classes:

– INFORMATION: ger. *Möchte jemand raten, welche das ist?* (Translate.ru);

– BORDER: ger. *Diese rote Linie muß man erraten und darf sie niemals übertreten* (DWDS);

– IDEA: ger. *Als hätte er ihre Gedanken erraten* (DWDS);

– PERSON: ger. *Der Concierge einer ganzen Nation also orakelt über Ibsen* (DWDS).

4. Analysis and conclusions

Thus, it has been specified the notion of predicate (as a constituent that defines subject relation with other constituents of the semantic structure) and actant (the participant that fills predicate's valence according to certain semantic role). In the Ukrainian, English and German languages predicate-actant models of the thematic group of predicates to define the situation of the process of irrational state acquisition present such participants as Experiencer, Stimulus and Content. Predicate-actant relations of the researched thematic group present the phenomenon of irrationality as the one that needs a certain participant (Experiencer) that is influenced (Stimulus) and "feels" (receives) some information (Content).

The prospects of the following studies dealing with irrational vocabulary concern with comparative research of specifiers of the thematic group of predicates in the Ukrainian, English and German languages.

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IONIAN FACTOR AND DELOS (IX – IV CENTURIES BC)

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Summary

The purpose of the article is to reveal the significance of the Ionian factor in the development of ancient Delos. Based on ancient sources, the process of Ionian colonization and the arrival of the Ionians on Delos are considered. It is established that the Ionians developed the cult of the god Apollo on Delos and turned it into an all-Ionian, and not only, religious center. Delos became the site of Ionian religious gatherings and the center of early Ionian amphictyony. The establishment of a famous religious center led to the neighboring islands trying to expand their political influence in the Aegean region through the patronage of Delos. On the basis of archaeological and written sources it is proved that the island was under the influence of Naxos, Paros; had the patronage of the tyrant Samos Polycrates and others.

The activity of Athens was demonstrated on the island due to the Ionic factor. The purification of the island by Pisistratus, the founding of the Delian league and the Delian-Attic amphictyony, the establishing of the Delia festival were considered. Athens believed she was an Ionian mother-city and used Ionian factor, trying to present itself as the religious leaders of all Ionians. They were able not only to establish control over the sanctuary, but also to extend their hegemony to the entire Aegean.

The peculiarities of the development of the Delos polis, which were connected with the Ionic factor, have been determined. Externally, Delos was a famous religious centre and had the status of a holy place that was inviolable. Like all Ionians, the Delos had the same tribal system, but due to constant external control, especially Athenian, and the presence of Athenian officials amphictyones, the Delos was not able to develop as a full-fledged independent polis.

Keywords: Ionians, Athens, sanctuary of Apollo, religious center, amphictyony.

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1. Introduction

The ancient polis of Delos is deservedly considered a distinctive polis of ancient Greece. Throughout the ancient period, it developed in a special way, which began with the arrival of the Ionian tribes and the formation of the cult of the god Apollo. The influence of the Ionian factor on the religious and socio-political life of the ancient island of Delos is a very important and insufficiently studied problem. It is only partially present in general and specific studies on Delos (*Laidlaw, 1933; CAH, 2008; Whibley, 2001; Tomson, 1958; Hornblower, 1991; Constantakopoulou, 2007*).

Therefore, the main purpose of the article is to reveal the significance of the factor of Ionism and its derivation on Delos directly on the basis of ancient sources. The main tasks are following: considering the Ionian colonization, the main events on the island related to the Ionians, and the spread of influence of other states; researching relationships between Delos and Athens as the oldest Ionian city; determining the features of the polis of Delos, which were associated with the Ionic factor. The methodological basis of the study is the

principles of historicism, as well as a comprehensive, systematic and contextual study of phenomena. The study is based on a problem-based approach. The solution of the research problem led to the use of both general scientific (analysis and synthesis) and general historical methods such as retrospective, historical-typological, comparative-chronological, problem-chronological.

2. Ionians and Delos

The formation of Delos as an important religious center dates back to the so-called “dark ages”, at that time the cults of all the Greek gods began to emerge. According to the Homeric hymn to Delian Apollo (Hom., To Delian Apollo. I.30–78.) and to the Hymn to Delos of the Alexandrian poet of the Hellenistic period Callimachus (Callimachus. Hymn to Delos, 55–274.) the goddess Leto gave birth to two gods – Artemis and Apollo on Delos under Mount Kynthos, while embracing a palm tree. The cult of Apollo on Delos developed when the island became Ionian, due to the colonization of the Ionian tribes.

It was at the end of the 2nd – beginning of the 1st millennium BC that the Aegean islands were the objects of migration. Dorian pressure in the Peloponnese caused the first Mesons of Pylos, including the Neleid royal house, and other Ionian inhabitants of Achaea to leave the Peloponnese and take refuge in Attica. The Neleids received citizenship there (CAH, 2008. Vol.2. P. 2), as well as rights to land and place in the tribal system (Tomson, 1958), as it was indicated by Thucydides (Thuc. I.12.4). Some of the clans, namely the Medontides, supported the royal power in Athens; another genus – Codrides – led the migration to Ionia (Tomson, 1958). As it is known from ancient sources (Strab. XIV.I.3; Paus. VII.2.1–4), the Codrides were members of the Athenian royal family, between which the struggle for reign in Athens erupted. In the end, Medont remained to rule, and the rest went to found colonies, gathering around them mainly the Ionian population. Colonization was the only organized act prepared by Athens, which gathered many refugees from other parts of Greece (CAH, 2008. Vol.2. P. 2).

Waves of migrants came mainly from Attica and through Attica in the XI century BC. 11 islands of the Cycladic archipelago and 6 of the 13 polises of Asia Minor Ionia were withdrawn from Attica (Kolesnikov, 2003). And then Andros, Keos, Naxos, Paros, Delos and other neighboring islands of the Aegean Sea received their Ionian population. On the shores of Asia Minor were founded cities: Miletus, Myus and Priena in Caria, Ephesus, Colophon, Lebedos, Teos, Erythrae, Clazomenae and Phocaea in Lydia, then Samos and Chios on the islands of the same name (Latyshev, 1997).

Panionium on Cape Mycale was chosen as the official center of the Ionians, but it was quite far to the south and proved inconvenient. Later, when the Ionians settled in all directions, they gathered for the festivals of Apollo on the island of Delos (Tomson, 1958). Since then, Delos has become the center of the Ionian cult of the god Apollo (Latyshev, 1997). The ancient Greek tradition explains why Apollo and his cult united all the Ionian tribes and why the Ionians developed the cult of Apollo to such an extent that the sanctuary of Apollo at Delos became of Greek significance. According to ancient Greek mythology, the Ionians descended from Ion, and Ion was the son of Apollo and Creusa, daughter of the Athenian king Erechtheus (Grejvs, 1992; Yarho, 1997). Therefore, the Ionians could consider themselves descendants of Apollo.

At the beginning of the “dark ages”, the image of Apollo as one of the important Olympian gods began to take shape, and his functions continued to increase in the following periods.

Plato (Plato. *Crat.* 404d–406b) explained the name of Apollo and found out such functions as patronage of music, the provision of prophecies, the ability to heal, archery. In addition, Apollo was the god of light, purity, patron of shepherds and guardian of herds, the god of competition, the god-protector, the founder of new cities, he headed the Muses.

Although there is no single decision on the origin of the cult of Apollo on Delos, most researchers insist on its Asia Minor origin, and its formation took place during the “dark ages”. After all, we can find evidence from Homer's poem “*Odyssey*” (Hom. *Od.* VI.162–163) that there was already an altar and the temple of Apollo on Delos, and next to it – a date palm as one of his attributes. Odysseus could compare the beauty of the daughter of the Feak king Alcinous Nausicaa with the date palm. In general, the problem of the origin of the cult of Apollo on Delos remains open. But, of course, we must distinguish the Delphic Apollo, who was a Dorian god, and Apollo of Delos, the Ionian god. Delian Apollo had no doctrine to preach even in the haphazard sense that Delphic Apollo had; or at least had no oracle through which to preach it. His mission, if such it may be called, was to act as a focus for Ionian sentiment, exclusively and inclusively (*CAH, 2008. Vol.3. P. 3: 258*).

Despite the fact that the cult of Apollo came to Delos, it made the island a place of all-Ionian and all-Greek significance. Delos has acquired the status of a “holy place”. Strabo (Strab. X.V.2) also cites an ancient legend about the birth of Apollo and claims that the neighboring islands glorified Delos for this. Thus Delos became the center of the early Ionian island amphycyony.

Amphycyonies were religious unions of neighboring peoples for the joint worship of the deity, without any relation to their tribal kinship (*Latyshev, 1997*). The original purpose of the amphycyonies was joint sacrifices and celebrations in honor of the revered deity at his temple, then – the protection of this temple and its treasures that have accumulated from private and public offerings, and the punishment of the saints. Festive meetings could also be held on the occasion of meetings on political affairs that were of common interest to the inhabitants of a particular area, so that the amphycyonies gradually gained influence on political relations. During the festivals, sacred truces were declared (*Latyshev, 1997*). The name of “amphycyony” means “inhabitants who live around” (*Jessen, 1894*).

From Strabo's data (Strab. X.V.3) it is known that the amphycyony first included 12 Cycladic islands, then several more were added. These include Ceos, Cythnus, Seriphus, Melos, Siphnuss, Cimolos, Prepensinthuss, Oliarus, Paros, Naxos, Syros, Mykonos, Tenos, Andros and Gyarus. This early island amphycyony was called Ionian, because most of the islands that were part of it were Ionian.

The existence of early Ionian amphycyony has been questioned. V. Chankowski believes that there was no archaic amphycyony on Delos. She agrees that Delos was an important religious center in the archaic period, but there were no official institutions, such as the Delphic amphycyony (*Chankowski, 2008*). But, based on the reports of ancient Greek authors, it can be argued that the sanctuary of Apollo at Delos was the religious center of the Ionian tribes. And they, in turn, could not fail to exercise any patronage and protection of their religious center. Thus, Delos of the archaic era was an important religious center of the Ionians, and it is possible that there was a certain agreement between the neighboring islands to protect the sanctuary of Apollo. That's why at that time the Delian amphycyony took shape, although it was not as institutionally organized as the Delphic one.

We can find from ancient sources that celebrations were held in Delos in honor of the god Apollo. The oldest reports of celebrations are in the Homeric hymn to Delian Apollo (Hom., *To Delian Apollo.* II.146–161). The Ionians gathered with their wives to glorify God. They

held fist fights, dances, choirs. The girls shot a bow. In addition to Apollo, the Ionians revered Leto and Artemis. Thucydides (Thuc. III.104.3) described that large gatherings of Ionians and inhabitants of neighboring islands on Delos. They came (as for the Ephesian Games) with their wives and children to watch the Delian games. Musical and gymnastic competitions took place, and dances with songs were arranged. Strabo (Strab. X.V.2) also mentioned about the Ionian assembly, sacrifices, maiden choirs and great national celebrations.

Such a large number of reports by ancient authors about the Ionian assemblies on Delos testifies only to the initial formation of Delos together with its sanctuary, the main religious center of the Ionian tribes. In addition, it should be noted that these meetings had not only religious but also, to some extent, economic significance: during the annual festivals in honor of Apollo on Delos, trade was mainly between Ionia and the Cyclades. Although they were insignificant throughout the archaic period and were limited mainly to ceramics (*Lapteva, 2009: 263*).

Religious influence aroused political interest in the island. As Delos gained fame as an important religious center during the archaic period, many neighboring islands and states tried to extend their control to it, which would increase their influence in the Aegean. Archaeological and written data prove that at this time Delos is traced to the influence of several states. At the end of VII – beginning of VI century BC Delos was under the influence of Naxos. But G. de Santer (*Santerre, 1958*) argued, based on the study of archaic dedications, that Naxos dominated Delos from the middle of the VII century. Archaeological evidence shows well that it was the Naxos who dedicated to Delos and the sanctuary of Apollo the terrace of lions made of Naxian marble, the temple of Apollo, the Naxian oikos (treasury) (*Santerre, 1984*), Artemision, as well as statues: Naxian kuros and the famous colossus of Apollo, which was 9 meters high (*Querrel, 2014*). Such things mean an interest greater than a simple devotion and something more than a simple desire to advertise products from their careers (*CAH, 2008. Vol.3. P. 1: 258.*).

There were also traces of the island of Paros on Delos. Following the example of Naxos, the Parians dedicated several kuroses (statues of boys and girls) to the sanctuary of Apollo, which are in the Archaeological Museum of Delos.

Delos may have been influenced by Eretria. Strabo (Strab. X.I.10) indicated that it ruled over Andros, Tenos, Keos and other islands. Eretrian influence on Delos, the great Ionian cult center of the Aegean, lasted before the VII century BC (*CAH, 2008. Vol.4*).

The influence of the Naxos on Delos led to the formation of patronage of the sanctuary of other ancient Greek tyrants. The help to the Naxian tyrant Ligdamid from the Athenian tyrant Pisistratus (*CAH, 2008. Vol.3. P. 1*) opened the way for him to Delos, which will be expanded later.

Another tyrant of Samos Polycrates, sought to establish trade hegemony in the Aegean and paid attention to Delos. He tried to become the saint patron of the Temple of Apollo. Thus, in Thucydides (Thuc. III.104.2) one can find a message about the gift of Polycrates (*Parke, 1946*). He conquered the island of Rhenea and dedicated to Apollo of Delos by attaching with the chains.

Throughout the archaic and subsequent period, even the inhabitants of Delos began to realize that their island-sanctuary began to gain importance throughout the Hellenic world. However, already at this time the Delos festival began to decline because the Ionians of Asia Minor were forced to fight the Persian state. Now the approaching war drew the attention of the mainland Ionians to their ancient religious association Panionium.

3. Athens and Delos

The role of Athens as one of the oldest Ionian polises in the religious and socio-political life of Delos should be considered separately. As it is known from ancient sources, Delos came under the influence of Athens, and in 540 BC Pisistratus purified the island (Hdt. I.64; Thuc. III.104). He ordered to dig up all the dead who had been buried in the area visible from the temple and transfer them to another part of Delos. At the same time a new temple of Apollo was built, which was made of Attic stone (*CAH, 2008. Vol. 3. P. 1*).

Pisistratus decided to raise his authority with the support and patronage he gave to the great Ionian celebrations held at Delos. It is well-known fact, that Pisistratus was a descendant of the Neleid family, descended from the revered founders of Ionia. So with great perseverance he began to implement this idea. And it should be emphasized that not without significance for the future of Athens was a close relationship, which entered Pisistratus with Delos and his temple of Apollo, a tribal shrine of all Ionians. The purification of the island was an example of Athens' claims to supremacy among the Ionian cities. In addition, according to Athenaeus (VIII. 330 E), the Athenians received a prophecy at Delos that they would dominate the sea. In this case, Pisistratus, fulfilling this prophecy, began to establish relations with the Apollo of Delos. Purification and supremacy over Delos helped Athens to spread its control throughout the Aegean, especially among the Ionian population of the islands and Asia Minor, which will be important for the policy of Athens in the future (*Hornblower, 1991; Laidlaw, 1933*). This could be the basis for the further establishment of Athenian hegemony throughout the Aegean.

Another view on this was in Berve G. He, in particular, notes that Pisistratus had a very tense relationship with the Sanctuary of Delphi, which, apparently, was sympathetic to the Alcmeonids (*Berve, 1967*). He further argues that the idea that Pisistratus dominated in the Aegean Sea by conquering Naxos and other islands is hardly true, at least not confirmed. If for religious purposes he ordered the purification of Delos, the sacred island of Apollo, from burials and contributed to the expansion of the sanctuary, it means that he actively sought the favor of the Delos god, who to some extent competed with the Delphic god and no more. If he really ruled the sea, it would not go unnoticed in the ancient sources (*Berve, 1967*).

The British authors of Ancient Cambridge history (*CAH, 2008. Vol.3. P. 1.*) also had a similar opinion that Pisistratus refused to get closer to the Delphians, who were supporters of the Alcmeonids, in addition, it was influenced by marriage with the Argives and rapprochement mainly with the Ionian Apollo of Delos (as noted earlier, rapprochement with this sanctuary was also characteristic of the friend of Pisistratus Lygdamis of Naxos and Polycrates of Samos). But the conclusions about the tyranny of Pisistratus state that the tyrant's activities in the Aegean, and especially the purification of Delos, point in the direction in which Athens was destined to move in the fifth century BC (*CAH, 2008. Vol.3. P. 1*).

The Athenians, as representatives of the Ionian tribes, took part in the Delian festivals and amphictyony. In addition, they sent a sacred embassy to Delos every year (Plato. *Phaed.*58a10 – p. 9; Paus. VIII.48.3; Plut. *Thes.*21). After the successful return of Theseus from Crete, the Athenians promised to send a sacred theory to Delos. It is this legend that has linked the Athenians to Delos since kings' times. By the way, the sending of one such sacred embassy to Delos delayed the execution of the philosopher Socrates.

The respectful attitude of the Athenians to the sanctuary of Apollo at Delos, the authority and special position of the sanctuary of Delos and Delos in general led to the fact that this sacred island became in 478/7 BC the center of the Delian league. This event is well preserved in the ancient tradition and is mentioned by more than one author (Thuc. I.96; Arist. *Athen.*

Pol.23.5; Diod. XI.37 – 84; Plut. Arist. 24 – 25). The creator of the union is considered to be Aristides, and its goal was to further fight the Persians. Athens had about two hundred allies. The the Delian league repeated the forms of earlier alliances, such as the Peloponnesian, led by Sparta.

The Delian league included all the islands in the Aegean Sea and colonies. The fact that Delos with the famous ancient Greek shrine became the center of this league was natural. Here it is necessary to point out again the importance of the Ionic factor. Delos with its sanctuary of Apollo was important to the Ionians in the literal sense. Initially, Naxos had the dominant influence, the Athenian interest was demonstrated by the tyrant Pisistratus. The use of the term “Ionian” in relation to a union whose members included the eastern Greeks on all shores is not accidental, according to sources: with the founding of the union it was presented as Ionian (which was to help justify Athens' leadership and make it acceptable to Sparta), and all eastern Greeks assimilated to the Ionians (*CAH, 2008. Vol.5*).

The Delian league had a peculiarity: it was necessary to wage a naval war. A congress of all commissioners from individual cities convened in Delos to decide the general affairs of the league, and all members of the league had equal voting rights at this meeting. But Athens had the leadership in the alliance, Athenians determined the conditions and activities of the Allies. Thucydides (Thuc. I.96) described the founding of the league quite fully: crews (the reason was the desire to avenge the barbarian for his troubles by devastating the Persian land). Then, for the first time, the Athenians introduced the office of treasurers for Hellas, who accepted phoros (so-called payment of monetary contributions). The first phoros was set at 460 talents. The treasury was at Delos, and a meeting of Allied delegates was held there. The amount of phoros changed further. Part of the money paid by the Allies was dedicated to Apollo at Delos (a similar offering was intended for the goddess Athena in Athens itself).

The Allied treasury was in Delos until 454 BC, at the same time Pericles (Plut. Per. 12.1) ordered the treasury was moved to Athens so that it would not be captured by the Persians. The Persians defeated the Athenian fleet on the Nile. And Pericles successfully used this as evidence of a new and possible Persian invasion to move the union treasury from Delos to Athens, where it would be safer and under the direct control of Athens. But opponents opposed the transfer of the treasury from Delos to Athens. The treasury was placed in the temple of Athena, and it symbolized the patronage of the union not of Apollo, but of Athena. The league no longer became all-Greek, but Athenian (*Strogeckij, 1991:131*). The First Athenian league lasted until 404 BC, when, as a result of the defeat of Athens by Sparta in the Peloponnesian War (431-404 BC), the dissolution of the league was one of the requirements of the peace treaty.

If we talk about the Delian league, then its formation and further development were more important for Athens than for Delos, on which it was founded. This island continued to retain peace, its status as a “holy place” and privileges. Delos was exempted from paying phoros, which other allies were required to pay.

After the establishment of the league's treasury on Delos, construction activity continued on the building of the marble temple of Apollo. After the transfer of the treasury to the Acropolis, work on the temple slowed down, its construction was completed only in the III century BC (*Vallois, 1953*).

The founding of the Delian league led to the formation of the Delian-Attic amphictyony (IG II² 1633-1653), in which Athens played a leading role. After the transfer of the common treasury from Delos to Athens in 454 BC, the island lost its significance for the union for some time. For Athens, however, this opened up new opportunities for further subordination of the sanctuary to its control.

In 425 BC, the Athenians again purified Delos. This time (Thuc. III.104.2; Paus. II. XXVII.1) all the graves with the dead were ordered by the Athenians to be taken out of the island and those who were to die were forbidden to stay there, and women who were to give birth were ordered to be transported to a neighboring island Rhenea. It was even forbidden to keep dogs there (Strab. X.V.5).

The external aspect played an important role in the second purification. After all, carrying out another purification was to resemble the activities of Pisistratus (*Hornblower, 1991*). Thus, Athens seemed to continue the policy aimed at establishing Athenian hegemony in the Cyclades and in the Aegean in general. The Athenians considered themselves the mother-city of all the Ionian states united by the cult of Apollo at Delos, so the next subordination of the island and the sanctuary of Apollo on it to its power for Athens meant, as already mentioned, the establishment of supremacy among the Ionian and some other tribes. And the Athenians continued to manipulate the legend of the origin of Ion. It is not in vain that Delos became the center of the Delian league). Athens' activity on Delos during this period can be explained by the fact that they sought to restore a kind of Delian "Ionism" at a time when Olympia and her strong Dorian association, holding a meeting, expressed their hostility to Athens. And Delphi, as another center of the cult of Apollo, had pro-Spartan sympathies at the beginning of the Peloponnesian War (*Hornblower, 1991*).

Then, in 422 BC the Athenians evicted the Delos from their island (Thuc. V.32.1). Although the following year, when the plague began in Athens, perceived as the punishment of Apollo, they returned them to the island. And Athens never stopped sending the annual sacred embassies – theories to the island (Plato. Phaed. 58a.10 – p. 9; Plut. Nic. 3.4.1 – 3.6.2.).

In the new Delian-Attic amphictyony, the Delos temple was run by Athenian officials amphictyones. There are different views on the origin of the term "amphictyones" and its connection with the archaic Ionian amphictyony. Here is just the best explanation: By using the term "amphictyones", Athenian officials adopted the role of the representatives from the entire network of participants that constituted in a previous era the religious network around Delos and now the official allies of Athens. Athens as single city wished to embody the network of participants in the cult, while also manifesting her power over a prestigious religious centre (*Constantakopoulou, 2007: 70*).

It should be emphasized once again that the Athenians positioned themselves as leaders of the Ionians. Ionian propaganda began in the time of Pisistratus, with the aim of presenting Athens as the mother-city of all of Ionia. She needed to emphasize the long relationship between Athens on the one hand, and Delos with the Cyclades on the other, and the mention of amphictyony could help. This, first of all, should be considered for explaining the origin of the name of the Athenian magistracy.

In addition to establishing a board of amphictyones on Delos, the Athenians took several measures to promote their further consolidation on the island. Among them was the establishing of Delia (Δηλια), a new festival in honor of the god Apollo. The establishing of this festival was another step of the Athenians to subdue the island and the Cyclades in general. Thucydides (Thuc. III.104.2) reports that after the purification, the Athenians first founded the festival of Delia and began to hold the Delian games every four years. Musical and gymnastic competitions took place here and round dances with singing were arranged by the polis. Further Thucydides (Thuc. III.104.3 – 4.) also explains that these competitions have existed since Homeric times, but became obsolete due to the conquest of Ionia by the Persians. The Athenians again introduced a four-year competition along with horse racing, which did not exist before.

The first festival took place in 425 BC and was probably the occasion for the majestic theory of Nicias (*Whibley, 2001*), described by Plutarch (Plut. Nic. 3.4.1 – 3.6.2.). Although there is an assumption that the theory of Nicias took place in 417/6 BC (*Ziebarth, 1917*). According to Plutarch, Nicias organized a lavish festival for the delicacies, dedicated a copper palm tree and a place bought for 10,000 drachmas to the temple of Apollo. From the income received from it, the dealers had to offer sacrifices to Apollo, organize feasts and pray to the gods to send all the blessings to Nicias. So Delia was accompanied by choir performances, sacrifices, banquets, games. It was obligatory to dedicate the golden crown to Apollo (*Freely, 2006*).

Reports from Athenian officials show that the holiday on the island itself was prepared by Athenian amphictyones. In addition, the Athenians celebrated this holiday in the month of Thargelion (*Chankowski, 2008*). The Delians celebrated the feast of Apollo in the month of Hieron, when, according to legend, their patron god was born.

The festival was modeled on the great Pan-Hellenic festivals and was undoubtedly open to the Aegean states and perhaps to all Greeks (*Whibley, 2001*). V. Chankowski calls Delia the second Panathenaic (*Chankowski, 2008*). It was important to the Athenians that the inhabitants of other polises recognize them as religious leaders in the Cyclades and in the whole Aegean.

The pro-Athenian feast of Delia was thus to unite both the Ionian and other islands around Delos, Apollo, and their Athenian patrons.

In 314 BC Delos gained independence and, most importantly, control over the sanctuary of Apollo. And the Athenian amphitheatres ceased their activities on the island.

4. Ionian Delos

Now it is necessary to move on to the main features of the development of Delos, which was influenced by the Ionian factor. All of them determined the external development of Delos, which secured him the status of a sacred and inviolable place. Its inhabitants had nothing to sell except religion (*CAH, 2008. Vol.3. P. 3: 258*).

All this, in turn, influenced the internal development of the Delos policy. The population of Delos belonged to the Ionian tribes, so it had a traditional division into four branches. In the inscriptions (IG XI 4 1026) the name of only one is preserved – Argades (*Αργάδης). Each of the philes was divided into trittyes. They were headed by tritttyarchons. Of the twelve thirds (IG XI 2, 287; 199; ID 1416; 1417), only five have been named: Tvestades (Θυεστάδαι), Okunides (Ωκυνεΐδαι), Purrakides (Πυρρακίδαι), Mapsichides (Μαψιχίδαι), Teandrides (Θεανδρίδαι). The division of tritium into demes remains problematic, and the small area of Delos made it impossible (*Laidlaw, 1933*). In several inscriptions (IG XI 4 547; ID 298.) there is evidence of division on the phratry.

In connection with the formation of Delos as a religious center there were no military formations, and archaeological excavations have not found any remains of defensive walls, which at one time allowed to easily attack the island and plunder it with the troops of Mithridates (89 BC) and pirates (69 BC). Delos himself did not take part in any military campaign.

Sources, especially epigraphic, do not allow to study in detail the polis organization of this period. Aristotle (Athenaeus. VII, 296 p.) described the Delian politia, but this source has not reached us. It is known that the Boule and the Assembly existed and functioned. With the formation of the Delian-Attic amphictyony, the Delian sanctuary of Apollo was ruled by Athenian amphictyones. Epigraphic inscriptions, especially from the so-called “Sandwich marble” (IG II² 1635), allow us to reveal their activities. They controlled the sanctuary, kept records of all offerings and donations to the temple of Apollo, organized Delia. In addition, amphictyones

issued financial loans to both individuals and policies. In this way, Athens could control all the debtors of the temple. The presence of the Athenian administration proves once again that Delos could not be independent and fully realized as a polis. It was not until 314 BC that Delos gained independence, was able to fully implement all polis institutions while the rest of the polis was in decline, and most importantly, control of the sanctuary of Apollo passed to the Delians and their officials.

5. Conclusion

The factor of Ionism became one of the determinants in the development of ancient Delos. The arrival of the Ionian tribes developed the cult of the god Apollo on Delos and turned it into one of the most famous Greek sanctuaries. And this, in turn, led to the patronage of the island of other polises and tyrants. After all, the establishment of good relations with Delos raised their authority in the Aegean region.

Athens, which considered herself the oldest metropolis of Ionia, also managed to establish its influence on the island. From the tyrant Pisistratus to the founding of the Delian-Attic amphictyony and the establishing of the festival of Delia, they were able to present themselves as leaders of the Ionians, to subdue and establish control over the sanctuary of Apollo. This was one of the factors that allowed them to establish their hegemony in the Aegean.

The presence of the well-known sanctuary of Apollo led to the development of Delos as a sacred place. And this, in turn, determined a different path from the development of the Delian polis. Under the control of Athens, Delos was not independent and could not fully develop its polis institutions until the Athenians left the island.

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MOTIVES OF THE RENAISSANCE ART IN THE WORKS OF BUKOVINIAN ARTISTS OF THE 20th–21st CENTURIES

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Summary

This study examines the works of fine arts of Bukovinian artists, which contain the plot lines, pictorial elements or principles of composition inherent to the works of Renaissance artists. Peculiarities of transformation in painting and graphics of Bukovinian authors of the 20th – beginning of the 21st century of motives and stylistic features of the Renaissance are analyzed. The analysis of the impact of the European visual culture of the 15th–16th centuries allowed tracing the presence of diverse variants and levels of comprehension and application of both the individual elements and the inherent to the aforementioned period the composition-solving principles by numerous authors. The worldview and themes of not only the masters of the Italian Renaissance, but also of the Northern Renaissance, the graphic and painting heritage of artists of the Netherlands and Germany of the end of the 15th-16th centuries, in particular, became the starting point for Chernivtsi artists. In the works one can observe the quoting of certain motives, usage of iconographic schemes, as well as completely different reading of well-known plots, modern interpretation and addition to the latter of new symbols and features of the art of later times.

Keywords: fine arts of Bukovina, Artur Kolnik, Leon Kopelman, Yaroslav Zayats, Genady Gorbaty.

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1. Introduction

The presence of certain influences in the painting and graphics of Northern Bukovina in 20th-21st centuries was quite rarely the subject of study by art critics. This circumstance does not allow speaking about the existence of a sufficiently complete and objective history of the development of fine arts in the region as a whole and a comprehensive description of the stylistic features of the works of individual authors in particular. Ultimately, one of the important aspects of studying the artist's work is to identify the links between the work of a certain master and the culture of the past and the art of contemporaries.

However, the analysis of the diversity of influences on the formation of the worldview of Bukovinian authors has not been properly reflected in the scientific literature. Considerations of semantic and stylistic parallels in the works of artists can be found only in a few publications dedicated to them. This is especially true to the essays published in Bukovinian magazines during the 1910s – 1930s. Since the mid-1920s, the number of articles has increased significantly, with authors trying not only to describe the plot or their impressions, but also to analyze the works, to find parallels between masters of world and Bukovinian art, trends in contemporary music and art. Similar issues were considered by Professor of the Chernivtsi Conservatory P. Jelescu in the publication “Modern Harmony”, published in the journal “Junimea literară”

(Jelescu, 1926). The articles of E. Pohontzu were one of the most interesting, which considered the differences between classical art, impressionism and modernist trends (expressionism, cubism, etc.). Subtly grasping the signs of one or another way of reproducing the world, the author sought to determine the directions to which Bukovinian artists gravitate (Pohontzu, 1925).

M. Kern (Kern, 1935) and the critic Albrich (Albrich, 1932; 1935) published a significant number of interesting reviews of individual works and expositions of Chernivtsi exhibitions, in particular, “Autumn Salons” of the 1930s. Among other materials, V. Zalozičejkyj’s posts are distinguished by a combination of thorough analysis, emotional presentation and unexpected view. An example is the article “Two paintings – brothers”, published in 1932 in the scientific and literary journal “Wandlung” (Zalozičejkyj, 1932). One of the few, it contained a detailed artistic analysis of works, between which the art critic sought to find parallels by comparing plot lines and figurative systems of compositions.

During the 1940s – 1980s the issue of influences on the formation of a master's personality was practically not covered. This also applies to the culture of the late Middle Ages, despite the fact that the system of academic education of artists at that time was built on imitation of the forms introduced in the Renaissance. Explorations on the history of visual art of the region were also rare. Among the latter is the work of K. Sanockaya (Sanockaya, 1970). However, due to the ideological limitations of the Soviet era, it is mainly about the influence of Russian culture on the development of art, although such statement seems much exaggerated, because for centuries there were close and active links of Bukovinian art mainly with art and architecture of Western Europe, not Russian empire.

The study of the art history of the region and the consideration of stylistic influences on the formation of artists intensified in the early 2000s. In particular, the ideological principles of O. Shevchukovyč's sculpture are considered in T. Dugaeva's book “Sculptor, Doctor of Medicine Opanas Shevchukovyč” (Dughajeva, 2002), and the artistic features of E. Lipetsky's works – in the publication “Eusebius Lipetsky. Artist and personality” (Mishchenko, 2004). However, there is still no generalized work that analyzes in detail the variety of influences on the development of Bukovinian art culture of previous eras, in particular, the Renaissance, which proves the need to study the origins of artistic preferences of artists.

The aim of this research is to analyze the works of painting and graphics of Bukovinian artists, in which there are the plot lines, pictorial elements or principles of composition inherent to the works of European Renaissance artists. The research methodology is systemic and historical approaches, application of methods of comparison and generalization, art analysis. The scientific novelty lies in the discovery of the peculiarities of the transformation in Bukovinian art of the 20th – early 21st centuries of Renaissance motifs, the addition of information about the art of the region in general and the works of individual masters. Important sources of visual information are, first of all, museum and private collections of works, in particular the Chernivtsi Art Museum, which houses a large number of works by Bukovinian authors of the 18th – 21st centuries.

The late Middle Ages was one of the most important stages in the development of European culture and contributed to the emergence of art in its territory, which included elements of ancient, barbaric and Christian worldviews and differed in a variety of topics, complexity of associations related to literature, journalism, philosophical concepts and religious ideas, the uniqueness of plastic language. E. Rotenberg wrote: “It is difficult to name any other epoch in history after the ancient world, the appearance of which would be so determined primarily by the highest flowering of art” (Rotenberg, 1989: 20). During this period a large number of familiar plots appeared, formed as separate genres, not related to religious compositions and

portraits, still life, everyday painting and landscape; were created different from the medieval principles of attitude to art as a special and important human activity. As V. Klevaev noted: "The expansion of spiritual horizons gave rise to new forms of reflection of reality in art" (Klevaev, 2007: 198). Over the millennial history of the Middle Ages, the means of expression of art have repeatedly and significantly changed, techniques of execution have appeared and improved, in particular, various types of engraving have appeared. The diversity of stylistic manifestations inherent in this era, the themes of the works proposed by it and the principles of their solution, even today largely determine the artistic orientation of contemporary artists.

The appeals to the visual culture of the Middle Ages in general and the Renaissance in particular are found in the works of many Chernivtsi artists, but they are most pronounced in the graphic sheets of Artur Kolnik and Leon Kopelman, watercolors and etchings by Yaroslav Zayats, paintings by Gennady Gorbaty. Renaissance motifs in the works of these authors are present less in the form of plot lines, but in the principles of spatial composition, the use of individual images, plastic quotations and symbols that create meaningful and stylistic associations with worldviews and artistic principles of the Renaissance.

2. The graphic of the 1920s and 1930s

The influence of the art of the late Middle Ages and the German Renaissance is present in the work of one of the most famous Chernivtsi graphic artists of the 1920s and 1930s – Artur Kolnik (1890–1972), a graduate of the Cracow Academy of Fine Arts, where he studied by Józef Mehoffer. This is especially true to A. Kolnik's album "Sous le chapeau haute forme" ("Under the Cylinder"), which consisted of 24 woodcuts and was first published in Paris in 1934 by "Les Ecrivains Reunis". The series of engravings was published in a separate book with a circulation of three hundred and fifteen copies, ten of which were signed by the author. Later, in November 1936, the album with a foreword by the French writer A. Barbusse was published by the Paris publishing house "Ars" with a circulation of a thousand copies, which testifies, in particular, to the relevance of the vision of social development proposed by the artist (Kolnik, 1936). It is also interesting the turn to the technique of woodcut, the spread of which in European art is also associated with the Renaissance.

The engravings of the cycle, marked by the artist's sarcastic attitude to reality, became a tragically ironic and elsewhere full of farce reflection of the life of that time. Depicting various aspects of human existence, the artist pays special attention to political grotesque, turns to anti-religious and anti-war motives, and creates sheets full of witty and sharp observations. The album also includes several compositions that demonstrate the options for the transformation of traditional plots, to which the artist gives a modern sound. Among them are engravings "Golgotha", "The Punished" and "Dance".

In the woodcut "Golgotha" A. Kolnik gives his own interpretation of the theme, without showing the usual for the Renaissance options for carrying the cross, the way to Golgotha or the execution of Jesus. Instead, the graph focuses on the symbolic figures depicted in the foreground – a priest, a gorilla-like policeman and a man in glasses and a hat (possibly a judge), who slowly, with a sense of duty, descends from the hill, leaving a man on his knees tied to a pillar. The association with the traditional plot is strengthened by the presence on the pillar of a plate similar to the one on the crucifixion of Christ. The engraving is distinguished by the conciseness of the compositional solution; all the images in it are presented in general, reflecting the position of the author, emphasizing his attitude to issues of humanity and the contradictions of the social order.

A. Kolnik returns to the topic of execution in the sheet “The Punished”, depicting a woman standing in despair at the feet of a hanged man, hugging a child. The images used in this engraving make it similar to the images of the Madonna and Child and at the same time remind those who are present in the classical solution of the crucifixion scene.

Addressing the theme of “Dance of Death”, which was widespread in the European art of the Middle Ages and the German Renaissance, A. Kolnik created an extremely relevant image of the expectation of imminent war. Graphic Death in the form of a skeleton in a gas mask under a cylinder with a torn cape and military boots dances wildly in the middle of the field, where the tanks move. The work “Dance”, which concludes the book, is the culmination of the cycle “Sous le chapeau haute forme”, because it is perceived as the result of the existence of creatures depicted by the artist, who, according to A. Barbusse, rule everyone behind the scenes of modern history (*Kolnik, 1936: 7–9*).

This cycle is characterized by emphasizing the predatory nature of most characters or turning them into a shadow-silhouette or mask (“Patriots”, “Masquerade News”, “Balance”, “Shoulder to Shoulder”, “Owner”). Such deprivation of human form of these negative characters draws parallels not only to the culture of the Middle Ages and the modern to the author Expressionism, but also to a series of etchings by Francisco Goya “Los desastres de la guerra” (“The Disasters of War”), where the war was portrayed for the first time not in the form of allegorical and romanticized images, but through the discovery of its cruelty, with an openly grotesque, animal-like embodiment of foreign soldiers (*Prokofev, 1986*). Transforming the established plots of the Renaissance, A. Kolnik combines the features of art of different times – from the late Middle Ages to the romanticism of the 18th – 19th centuries and German expressionism.

The influence of Renaissance art in the 1920s and 1930s is also noticeable in the work of Leon Kopelman (1904–1982), who studied in 1924–1928 painting at the Royal Academy of Arts in Florence. The future artist studied in the studio of Felice Carena, whose influence is quite clear in his works of the time. However, despite studying in Italy, L. Kopelman in his works is stylistically closer to the visual culture of the Netherlands and Germany. Perhaps this is due to the general orientation of the fine arts of Bukovina to the art of Germany and Austria, in whose educational institutions local artists, for the most part, were educated.

One of the critics, talking about the exposition of the “Autumn Salon” in 1932 in Chernivtsi, already then emphasized the similarity of woodcuts of the young artist to medieval engraving, but did not provide the names of works (*Bilderausstellung, 1932*). Among the graphic sheets of L. Kopelman can be distinguished several groups of works in which such influence is felt most clearly. These include: a series of self-portraits created in 1927–1930, compositions based on evangelical themes of the late 1920s, and the etching “Fossa dell’ Abate” of 1926 (all of which are now in the collection of the Chernivtsi Art Museum).

The works of L. Kopelman of that time mostly reflect the renaissance ideal of a free and capable of action individual who asserts himself in society: “The great masters of the 16th century set an example of a new type of artist – an active creative personality, free from the former petty guild restrictions, endowed with the fullness of artistic self-consciousness and able to force to reckon with the strong of this world” (*Rotenberg, 1989: 23*). Given this, it is not accidental that the artist turns to self-portrait, a genre that spread during the Renaissance, as opposed to the medieval attitude towards the artist as a craftsman, whose name was mostly not even mentioned.

Among L. Kopelman's self-portraits, the etching “Self-portrait with a Flower with the Background of a Landscape” (1927) is the most revealing in terms of the use of the iconic system of the Italian Renaissance and the construction of the composition. It contains characteristic

to this epoch principles of solving the pictorial space and more imaginary than real image of the “constructed” landscape, which combines all the diversity of the earth's surface. The last feature clearly demonstrates the influence on the formation of a young artist of plastic language of the late Middle Ages. After all, since the 15th century in Italian art the plane of a painting or graphic work acquires a third dimension, and the space depicted in it visually deepens, allowing the artist to reflect in one work the whole world around the human, and consists of specific objects, as opposed to conditional landscape of the earlier times. For the first time, art reflects a disinterested (from the point of view of utilitarianism) admiration for nature, which, however, did not always appear as a favorable environment for human existence. Hence there are the attempts at least in a picture or engraving to depict the ideal world, combining elements of many landscapes – real or created by the imagination of the author. A certain distance between human and nature was emphasized by a special compositional technique, when everything depicted was perceived as if from above and from afar, as a panorama with a clearly defined horizon. Art critic I. Danilova calls this the “view of domination” invented during the Renaissance (*Danilova, 1984: 110*). Despite the already existing in the practice of artists three-dimensional pictorial space, the characters in such works are still in the foreground and quite clearly separated from the depicted landscape. All these features in their classical embodiment can be seen in the aforementioned self-portrait of L. Kopelman.

An interesting solution to the panorama appears in the self-portrait “Reminiscence” from a series of woodcuts of the late 1920's. Here the author combines architectural monuments from different cities of medieval Italy located in a considerable distance: the baptistery and the dome of the Cathedral of Santa Maria del Fiore in Florence, the Leaning Tower of Pisa and other outstanding landmarks. Thus L. Kopelman, following the masters of the Renaissance, constructs an imaginary landscape, creating the dream ideal world.

To a lesser extent, similar features are present in other engravings of this genre, made by the artist in 1928–1930. In the “Self-Portrait” of 1929, the half-figure of the person portrayed is located between the columns that separate the foreground from the landscape background, creating a characteristic to the Renaissance in the Netherlands window effect, the landscape of which is intended not only for contemplation, but also carries a semantic load.

The “Self-Portrait with a Flower against the Landscape” also uses elements of “vanitas” common in the Renaissance, which reminiscent of the ephemerality of human life and earthly life in general. Symbols of such ephemerality of existence are the flower in the artist's hand, and the image of the cemetery and ruins, the winding river and a tunnel, the smoke of the locomotive and the eclipse of the sun. The inscription on the tombstone becomes both a sign of transience and the artist's signature, as it contains his name, surname, date of birth and mention of his studies in Florence.

In the majority of works of the graphic such a renaissance sense of the world and oneself in it is combined with contemporary manifestations of expressionist art, which appeared in the late 1920's in the works of L. Kopelman and for a long time will determine the style and manner of the artist. Perhaps such a combination was logical for him, because the grotesque, as one of the important means of expressionism, had parallels in the emotionally rich, exalted culture of the late Middle Ages. The same applies to the artist's use of woodcut techniques, popular both in the 15th and 16th centuries, and among many German expressionists of the early 20th century.

The combination of features of Renaissance art and expressionism is present in the etching “The Scourging of Christ” in the late 1920's. Here a compositional solution, the use of architectural background, an accentuated alienation from the depicted events of the characters of the background, characteristic of the paintings of Italian masters of quattrocento, are

organically complemented by the dynamics of foreground figures that clearly outline associations with modern realities. A similar composition is found in Antonello da Messina's work ("Saint Sebastian", 1475–1476, Gallery of Old Masters, Dresden) and Piero della Francesca's ("The Scourging of Christ", ca. 1455–1460, National Marche Gallery, Urbino, Italy). The figures of the townspeople depicted next to the scenes of martyrdom by these two authors are similar. Although in dealing with the figures of those who insult Christ, L. Kopelman is much closer to the dynamic figures of Luca Signorelli's paintings ("The Scourging of Christ", 1475 (1482–1485), Pinacoteca di Brera, Milano; "The Scourging of Christ", 1507, Lindenau Museum, Altenburg), especially to the scene of the scourging from the predella "Removal from the Cross" ("The Scourging of Christ", 1502, Museo Diocesano, Cortona).

Interpreting the medieval compositions of the plots "The Martyrdom of St. Sebastian" or "The Scourging of Christ", the author emphasizes them by the underlined emotionality of expressionist manifestations. The characteristic to the Renaissance sense of balance in the engraving by L. Kopelman is destroyed by the rapid movement of figures in the foreground, forming a kind of funnel, in the center of which is a column with the figure of Christ. Massive, dense in tone figures of "bald" with whips in the hands contrast with the calm lines of the architectural environment and generalized silhouettes of people in the background. In this etching, associations with real events in Italy at the time are combined with the author's philosophical reflections on why one dares to be a Human, while others turn into a faceless aggressive crowd or vague figures of those who do not try to resist the evil. Renaissance pictorial motifs here reflect the impressions and silent protest of the artist, who, while in Italy, observed the emergence of fascism in Europe and repeatedly addressed the theme of its emergence and reactions of the society to it (sheet "Unterhaltung" ("Conversation")) from a series of self-portraits, 1928–1929). A similar modernization of classical themes is characteristic to the artist's drawings with Christological motifs ("Rest on the way to Egypt", 1920–1930; "Passions of Christ", 1931, Chernivtsi Art Museum), in which the influence of the paintings of the Netherlands of the 15th century is palpable, with its inherent grotesque.

The appeal to the artistic heritage of the Renaissance in the artist's work is limited to the 1930s, because after the annexation of Northern Bukovina to Soviet Ukraine in 1940, he will work mainly on landscapes of Chernivtsi and the Carpathians, make caricatures for newspapers and industrial graphics. Instead, a significant part of the mentioned works will not even be exhibited till the posthumous exhibition of graphics in 1994 at the Chernivtsi Art Museum; they will not be included to any of the life catalogs of L. Kopelman.

3. The Art of the 20th–21st century

Among modern authors, Renaissance motifs are most often found in the graphics of Yaroslav Zayats (b. 1951), a graduate of the Faculty of Graphics of the Kyiv State Art Institute (now the National Academy of Fine Arts and Architecture). In works of this master, conciseness and formal expressiveness of the solution are achieved, in particular, through numerous images-symbols, which, due to their universality, become both the embodiment of national motifs and universal archetypes, and carriers of common concepts and images for many European cultures. The latter are often associated with the Middle Ages and the Northern Renaissance. Philosophical, associative and stylistic parallels, internal kinship with the works of Dutch artists of the "Renaissance without Antiquity" can be felt in Y. Zayats' watercolors and etchings. Among them closest to him are the painters Hieronymus van Aken (Bosch) and Pieter Bruegel the Elder. We can assume that this consonance of ideas and motives is due to coincidences in

the historical development of countries. After all, the ambiguity of today in Ukraine is somewhat reminiscent of the political situation in which the Netherlands was in the 15th and 16th centuries.

The researcher of Dutch art B. Vipper identifies as notable features of the Renaissance in the Netherlands a heightened sense of spatial indivisibility of depicted phenomena and events, awareness of their material and emotional connection and the associated interest in the air, subtle tonal and color relationships (*Vipper, 1957: 21*). Y. Zayats, like the masters of that era, perceives the world in its inseparable unity with a human, as really visible and close, and, at the same time as inaccessible to human understanding, cosmos created by God. Perhaps the most distinctive in his works was the influence of P. Bruegel the Elder, whose artistic ideas are closely linked to the medieval worldview, folklore and allegory, and the paintings are characterized by a bizarre combination of reality and phantasmagoric.

The works of the modern graphics contain the insight and spirituality of Bruegel's epic compositions, his inherent cosmic understanding of the world (hence – and a high horizon line that allows the eye to comprehend a large space), the all-encompassing nature of the artist's perception of reality. However, the majority of Y. Zayats's works lack the tragedy and grotesque inherent to the paintings of the Dutch painter; the harmony of the coexistence of nature and human is emphasized instead. In general, the influence of the art of the past is an important feature of the artistic language of works, giving a special sophistication and expressiveness to the created images, but, nevertheless, is only part of the complex and ambiguous thinking of the modern author. Borrowing certain plots or principles of compositional construction, as well as largely echoing the worldview of the past, reproducing elements of a style, the master always saturates them with his own vision, uses the plastic language of his time.

An example of such an artistic transformation is the watercolor “The yard of my childhood” (1984), in which everyday life is compared with the existence of the universe. The closed space of the courtyard, accentuated by the frontal solution of the composition with the back-stage objects that reveal the action scene to the viewer, is combined with the surrounding world, recreated in a garden panorama with a constant path in the background and a barely visible swallow in height. In this sheet the quiet joy of everyday life with attention to the smallest and seemingly inconspicuous elements (the variability of the sun's rays on the wall of the house, colored glass in the window, bouquets of dried flowers and kitchen utensils) is shown. However, in the watercolor of Y. Zayats, for all its detail, the photographic, deceptive similarity of images to natural objects is avoided. The generalizations concern not only the meaningful plan of the work, but also the means of expression used in it, when the contours of the depicted objects soften, dissolving in the strokes of multi-layered scales.

The influence of P. Bruegel the Elder work is most noticeable in Y. Zayats' watercolor “Snow Fall” (1982), in the compositional solution of which parallels with the “Winter Landscape” and “Hunters in the Snow” by the Dutch author can be traced. The latter in his picture creates a deep, detailed panorama, on the left in the foreground placing a group of hunters. Y. Zayats also has a group of two boys and a woman with a child in the lower left corner of the sheet. However, Bruegel's hunters are dynamic, active in color; they stand out in a clear silhouette in the snow, setting the linear rhythm of the whole work. Instead, in the work of the Ukrainian graphic artist, the figures of people almost merged in color and tone with their surroundings, they froze in their movement – like a stopped moment of life. And all around is the infinity of a seemingly enchanted winter space – the Universe, in which a human is only a part of the silence that he is not allowed to break.

The dynamics characteristic to numerous scenes of peasant dances (kirmes) and holidays by Dutch masters are also present in Y. Zayats' watercolor "Wedding" (1984). However, when constructing the composition, the Ukrainian graphic spatially and tonally emphasizes a certain detachment from the events unfolding next to him. And only once his work surprises with the inherent to the kirmes of Dutch painters unrestrained movement ("*Dance*", 1997).

The combination of motifs of medieval culture and modern vision is also present in the poster he painted for the theatrical performance of G. Boccaccio's Decameron (1984). Based on a Renaissance-inspired literary work, the watercolor very accurately reflects the character of the novels imbued with humor and irony, life-affirming power and observation, in no way literally repeating the plot lines of the book.

The composition as a whole evokes semantic associations with the central part of the triptych by H. Bosch "Hay cart" (ca 1516 (1500–1502), Prado National Museum, Madrid), which, like the huge apple in the poster of Y. Zayats, became the embodiment of earthly life with its hustle and bustle, from which everyone seeks to get a piece. In H. Bosch the side parts of the triptych depict heaven and hell. In the work of the modern artist the futility of human hopes and the transience of life, the inevitability of punishment for sins is symbolized by the figure of an angel who cuts off part of an apple with a knife, approaching the end of earthly existence. However, the work of the Ukrainian author, despite the dramatic or tragicomic accents, still has a more optimistic sound. It is full of irony of a witty narrator, each motive in the interpretation of which is part of the whole and at the same time a self-sufficient plot. Among them is a replica of the famous painting by one of the founders of classicism N. Poussin and a mocking image of a pious girl, a duel of the men, a knife sharpener and a tired and desperate angel. And behind the hustle and bustle of the apple there is a calm and gentle landscape and dynamic sky, which loved to depict also Dutch painters.

Combining in the sheet the classic background landscape drawn in small strokes and the fantastically paradoxical image of an apple in the center, the artist saturates his work with a significant number of eloquent details, each of which clarifies the idea. This is how a lock appears, which does not shut anything, while remaining a sign of the forbidden fruit, and a clock without arrows – as a sign of the timeless existence of the depicted plots and characters of the people.

The graphic artist most often addresses the theme of the Nativity of Christ, sometimes combining in the composition the iconography of various plots of the Christological cycle and the image of Ukrainian folk customs. Y. Zayats seems to emphasize the somewhat contradictory coexistence in the presence of elements of the late antique, barbaric and Christian worldview, which formed the foundations of modern European culture during the early Middle Ages at a new stage of human development.

Similar motifs are present in the toned etching "Christmas" (1991), in which there is a characteristic to Dutch culture of the 15th–17th centuries, traditional icon painting and Ukrainian folk art, combination of time-divided events, transfer of classical motifs and characters to the present, phantasmagoric combination of different plans. This work depicts the Biblical Magi who came to worship the baby, the characters from Ukrainian Christmas rites of Malanka and carols, ordinary peasants and a shepherd, and Jesus carrying the cross. In the iconography of Christ, the affinity with the works of artists of the Dutch Renaissance is especially noticeable. The work is full of details, each of which is significant and expresses the philosophical concept of the author. It is no coincidence that the symbols of the Eucharist appear in the composition – a chalice and bread on a white canvas spread on straw, earth fruits scattered in the snow, reminiscent of the symbolic still lives of Hugo van der Goes in the scenes of worship of the newborn Jesus. Almost out of nowhere the ladder appears near the figure of the Madonna, leads nowhere,

and then repeats in the background, creating associations with the famous plot of Jacob's dream. However, all the other characters become only the background, the frames of the film that captures the events. Instead, the most important are the figures of Mary with the baby and the image of a cow, with a metal bell on her neck and a Hutsul carpet-kilim on her back, leaning towards the child, separating the whole group from the procession in the background. By Y. Zayats the image of a cow not only reminds of the characters of the Nativity scene, but also symbolizes the earthly life. After all, as V. Klevaev notes, in many peoples of Europe the cow is a personification of one of the elements of the universe, and there are four: fire, air, water and earth. The earth is an element that was associated with a melancholy temperament" (Klevaev, 2007: 545).

The image of the Mother of God with the baby is also present in the composition "Night" created in 1989, where the image suddenly acquires the likeness of a mystical medieval action, the center of which is the figure of Mary. Around her unfolds a dramatic extravaganza of figures and faces of people, images of animals and storks, turning into the embodiment of the fall into hell, over which above are the quiet and sad figures of a peasant couple and a cross. The symbolism of the details, as well as the mood of the work, reminiscent the medieval reliefs and paintings by many masters with scenes of the Last Judgment and the image of hell-darkness, in which people disappear.

Visual comparisons of pagan and Christian symbols are interesting in the works of the graphic. Thus, in the figures of the composition "Divination" (2007) appear the images of the solar sign and the sleepless eye, the girl-Eve and the Mother of God of Great Panagia, which at the same time is the embodiment of the artist's native Ukrainian region of Pokuttya. The ornaments applied on top of the image act here as a visible sign of ancient beliefs. The female images created by the artist often resemble Eve or Danaë of the Renaissance, while retaining purely national features, which can also be seen in the connection with the principles of Renaissance art (cycle of works "Autumn", early 2000's).

Addressing the plots and motifs of European art of the 15th –16th centuries and using unexpected combinations of images of that time, archetypes and complex associations, traditional and new artistic techniques, Y. Zayats creates a self-sufficient system of signs and plastic metaphors of postmodernism. Notable for the master's works is their semantic multidimensionality, which leads to a variety of reading works, engaging the viewer in the intellectual game offered by the artist, full of allegories, visual parallels and symbols.

The influence of Renaissance art is manifested in a different way in the painting of Genady Gorbaty (b. 1955), a graduate of the Faculty of Painting of the Kyiv State Art Institute (now the National Academy of Fine Arts and Architecture), who worked in Chernivtsi in 1987–1992 and now lives in Germany. Characteristic to him is a frequent combination of motives and plot lines on the art of the past and the perception of modern man within one work, emphasizing the sensual principle ("*Danaë*", 2009).

A similar solution is noticeable in "Three Graces" (2009), which combines elements of "Judgement of Paris", "vanitas" and images of harites, while the artist seeks primarily to emotionally saturate the canvas, to make a more expressive play of colors and textures. The motif "vanitas" repeatedly appears in the paintings of this author, such as "Dance of the Butterflies" (1992), in variations of "Magic Signs" (1998), recalling the ephemerality of youth and the transience of human existence.

It is possible to trace how the artist's approach to the use of pictorial elements of the Renaissance changed on the example of a number of works of 1992–2009, based on the image of the Garden of Eden. If in the early canvas "Adam and Eve" (1992), for all the conditionality of the plastic solution, the associations given by the forms and range of red and black tones

are easy to read, therefore later the works become multilayered in content, more complex in developing a picturesque surface (*"Tree of knowledge"*, 1994). In this picture, the earthly existence, presented as a lifeless desert with a lonely unstable temple and a lonely human figure, is contrasted with the Garden of Eden, symbolized by a tree with apples falling generously on the cracked ground. The figure of Eve here almost merges with the trunk, as if arising from a texture resembling a snakeskin. The expression, reflected through the contrasts of pasty, color-active spots and translucent planes of light local tones, emphasizes the feeling of energy that is released, as if tearing the surface of the canvas. As in other works by G. Gorbaty, paradise is not the embodiment of harmony, but a place of confrontation and conflict (*"Garden of Eden"*, 1998; *"Garden of Eden I"*, 2009), and is reproduced primarily by the confrontation of colors and dynamic textures.

The personification of the contradictions and drama of the earthly existence is the canvas *"Babylon"* (1993–1994), in which the tower, which diagonally crosses the surface of the painting, leaves a trace of its own destruction, becoming a phantom of ideas, a symbol of futility. And the barely outlined generalized silhouettes of people seem unstable and amorphous, changeable, like waves enveloping the disappearing contours of the tower.

Addressing the images of both the Italian Renaissance and the Northern Renaissance, G. Gorbaty transforms them, leaving, for the most part, only a hint of the recognizable symbols of this era and paying attention, above all, to the creation of an active, pulsating picturesque surface, which embodies the feeling of inner anxiety and emphasizes the sensory principle in the artist's perception of the world.

4. Conclusions

The analysis of the works of several masters who worked in Chernivtsi during the 20th–21st centuries allows us to talk about the variety of options for their use of artistic heritage of the Renaissance – from borrowing storylines and quoting individual motifs, reproduction of stylistic features – to the complete transformation of images, which leads to the emergence of a more complex and multidimensional work, in which the Renaissance style is complemented by features of art of later eras. Some artists turn to the culture of the Italian Renaissance (L. Kopelman, G. Gorbaty), others rethink the principles of art of the Northern Renaissance – especially the Netherlands and Germany (A. Kolnik, Y. Zayats). However, each of the authors demonstrates an organic combination in his works of the principles of solving the compositions of the late Middle Ages and modern artistic manifestations.

Thus, the graphics of A. Kolnik and L. Kopelman are characterized by a fusion of the plots of the Middle Ages and the aesthetics of expressionism. Instead, Y. Zayats seeks to find the accuracy of plastic expressions through semantic and visual parallels, the complex symbolism of Dutch art of the 15th and 16th centuries and the elements of Ukrainian traditional culture. For G. Gorbaty the very poetic and emotional basis of the myth is important, and the plastic ideas and pictorial motifs of the Renaissance act as a stimulus to one's own search for a sensual interpretation of such a myth.

Using various sources, these artists reflect changes in the perception of certain classical works, complementing the ancient motifs with their own reading and arguing that the influence of Renaissance heritage on contemporary art is an important factor in forming new meanings and enriching the plastic solution of compositions. Therefore, the existence of such artistic parallels requires further analysis in order to understand the essence of the interaction of elements of different epochs of cultural development.

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CRITICAL THINKING OF IT TEACHERS AS IMPORTANT COMPONENT OF THEIR PROFESSIONAL COMPETENCE

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Summary

The article analyzes the role of critical thinking in professional growth, proves that critical thinking is an integral part of the professional competencies of future computer science teachers, an important component of modern higher education. The definition of the concept of critical thinking is clarified and presented in the author's interpretation as a type of thinking and evaluation activity, which is manifested in special skills that are formed in the process of professional training, and which are necessary for the effective solution of professional problems. The study outlines the principles of development of critical thinking and identifies four stages of development of critical thinking of future computer science teachers. The author of the article emphasizes the observance of certain pedagogical conditions in the process of forming students' critical thinking: taking into account age, level of educational achievements, available life experience. It was found that the basis of critical thinking is such qualities of the mind as curiosity, flexibility, depth, discipline, organization of mental activity, critical thinking, which must be developed in the future specialist. Based on the analysis of scientific sources and practical developments, it is proved that critical thinking is the key to the productive professional activity of future teachers in ensuring compliance with the requirements for mandatory learning outcomes of students in the field of informatics, self-improvement, reflection.

Keywords: critical thinking, development of critical thinking, competence, future teachers of computer science, the institution of higher education.

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1. Introduction

In the system of continuing education, which is formed in the conditions of rapid renewal of equipment and technologies, socio-economic changes, one of the key tasks is "development of future-oriented thinking", because in today's information society the knowledge that needs to be understood is important. (*National Strategy, 2013*). The current professional market requires the ability to apply them in practice quickly, efficiently and creatively in solving various problems that arise in work and everyday life.

For several years in a row, critical, analytical thinking, digital information analysis skills remain in the ranking of top skills that modern specialists must have in order to be in demand in the labor market; ability to solve problems comprehensively; creativity and originality; leadership and organizational skills; application of new technologies for professional growth, self-improvement and development; resilience, stress resistance, flexibility (*The Future of Jobs Report, 2020*).

Therefore, one of the priority tasks of Ukrainian higher education is the training of competent specialists, in particular, computer science teachers who have such skills and abilities, including critical thinking (CT).

The purpose of the article is to analyze the role of critical thinking in the professional growth of future teachers, to clarify the concepts, stages of development of critical thinking, to justify the importance of its development for the formation of professional competencies.

2. Analysis of the researches and publications

The founders of critical thinking are E. de Bono, W. James, J. Dewey, D. Cluster, M. Lipman, K. Meredith, R. Paul, C. Temple, P. Freire, D. Halpern and others, who studied this problem. The development of critical thinking of student youth and future teachers attracted the attention of A. Avershyn, A. Bublyk, L. Kienko-Romanyuk, K. Krasnolutsky, Y. Lishchuk, I. Mushtavinska, M. Pochynkova, A. Solomenko, O. Tyaglo, T. Kharlampyeva, T. Khachumyan, T. Yakovenko and others. Scientists offer methods of CT development with the use of project technology, interactive methods and techniques, business games, substantiate ways of forming CT by means of information technologies, etc. At the same time, the problem of the developing critical thinking of future computer science teachers remains insufficiently studied.

3. Presenting of basic material

Professional and personal qualities, values, ways of thinking of a computer science teacher are a constant topic for discussion. After all, today computer science teachers act not only as teachers but also perform the functions of mentors, consultants to subject teachers on the use and implementation of digital technologies in the educational process, ensure the functioning of information management systems of educational institutions.

Different concepts and approaches are used to ensure high-quality training of future teachers in higher education institutions, but according to scientists, the competence approach is the starting point for reforming national education (*National Report, 2016*).

"Competence approach involves the training of a specialist as a process of formation of competencies that allows you to implement professional functions and competencies that ensure the implementation of certain professional activities" (*Gusak et al., 2015: 10*).

The works of N. Balyk, V. Bykov, M. Zhaldak, N. Morse, S. Rakov, S. Semerikov, O. Spirin, Y. Ramskyj, Y. Trius are devoted to the problem of formation of professional, general competencies in the process of professional training of future teachers of computer science, etc. There are also dissertation researches by O. Mojko, O. Krivonos, A. Kirilov and others.

In a joint study, M. Zhaldak, Y. Ramskyj and M. Rafaljsjka note that "the formation of professional competencies of computer science teachers involves the acquisition of competencies in computer science and related disciplines, teaching methods and didactics, psychological and pedagogical foundations of the educational process, research and pedagogical communication, which determines the quality of his professional activity" (*Zhaldak et al., 2009: 6*).

Mastering competence requires significant intellectual development, abstract thinking, self-reflection, self-esteem, self-determination, critical thinking (*Selevko, 2006*).

At one time, exploring the concept of competence, its components, J. Raven identified the types of competencies (motivated abilities) that are necessary for specialist to successfully achieve their goals. This list also includes critical thinking (*Raven, 2002*).

Scientists define thinking as an important component of the formation of professionalism, the development of intellectual and creative abilities of the future specialist, the development of professional competencies (*Kokun, 2012, Morse et al., 2010*).

In the dissertation research M. Zhaldak, based on the work of Biryukov B.V, Petrov Y.A, Sohor A.M and others, emphasized the importance of logical training of teachers of computer science, the development of informal, creative components of thinking: problem statement or creation problem situation; formulation of criteria in the selection of the necessary operations for the solution; making hypotheses, assumptions in the search for solutions that require a creative approach, rather than reduced to combinatorics and the generation of random states; material representation of the formal solution; understanding, etc. (*Zhaldak, 1989*).

The formation and development of competence are determined by the variation of approaches, strategies aimed at solving professional problems, and critical control of their application. Critical thinking is closely linked to the success of such tasks due to the metacognitive strategies that are part of it (*Kukushkina, 2008*). In particular, one of the important metacognitive abilities is the ability of a person to self-regulate their own educational and cognitive activities (self-education):

- the ability to evaluate what she knows and what she does not yet know;
- ability to set a task;
- ability to build an algorithm for its solution;
- ability to organize the search for its solution;
- ability to evaluate the obtained results and comprehend one's own activity in finding a solution to the problem. Metacognitive abilities also include the open cognitive position of the individual (*Kuljutkin, 2002*). It is thanks to such skills that students will be able to consciously learn, gain experience, apply it in new conditions to solve professional problems.

Understanding competence as the ability to act in a situation of uncertainty, scientists call critical thinking and cognitive flexibility basic competencies on the basis of which other competencies are formed and developed (*Zhukockaja et al., 2019*).

The professional standard for the professions "Primary school teacher of general secondary education", "Teacher of general secondary education", "Primary education teacher (with a diploma of a junior specialist)" defines the list of general (civic, social, culture of expression, leadership, entrepreneurship) and professional competencies (language-communicative, subject-methodical, information-digital psychological, emotional-ethical, competence of pedagogical partnership, inclusive, health-preserving, design, prognostic, organizational, assessment-analytical, innovative, ability to learn during life, reflexive), which must have a modern teacher to successfully perform labor functions. These competencies include the ability to: work critically with information; operate with information in professional activities; critically evaluate information, strategies, ICT, digital technologies to work with it; to form students' ability to social interaction; create conditions for positive self-esteem of students; ability to make rational decisions based on facts; use the practice of critical thinking in the educational process; awareness and understanding of other people's emotions; monitor own requests and needs; self-reflect; evaluate the effectiveness of their own teaching activities and others (*Professional Standard, 2020*). These skills are within the competence of critical thinking. Therefore, CT is one of the most important cross-cutting skills, the basis for the formation and development of computer science teacher competencies, a guarantee that the teacher will be able to develop this type of thinking in students and teach critical thinking, because "... teacher educates primarily his thoughts, his thinking. And pedagogical activity is, first of all, the work of thought, aimed at inspiring pupils with the desire to know, to think, to have the right views of the world around them" (*Sukhomlynskyj, 1976: 198*).

Critical thinking should be developed, starting with preschool education, continue to develop in general and higher education, improve during the performance of professional

activities, solving life problems. In particular, in general secondary and higher education institutions, this can be done by introducing a separate discipline "Critical Thinking". The teaching of CT at different levels of education should be continuous, coordinated. Through the use of critical thinking in the teaching of other courses will help increase the level of mastery of disciplines that use its resources (*Bondar, 2014, Tjaghlo, 2017*).

The development of thinking skills does not happen spontaneously. To improve them, students must make a systematic effort and consciously focus on improving them. If this is not done during the educational process, then students develop inertia, stereotyped thinking and activities, which are then transferred to the professional sphere (*Zhukockaja et al., 2019*).

The main goal of forming students' critical thinking if they do not have stable skills to think critically is to expand thinking competencies for effective solutions of social, scientific and practical problems (*Shakirova, 2006*).

The teacher directs efforts to the following aspects of students' thinking: 1) development of all types and forms of thinking and facilitating the transition from one to another; 2) formation and improvement of mental operations; 3) the development of skills to distinguish significant properties of objects from insignificant, to find connections and relationships of things and phenomena in the environment; to make correct conclusions on the basis of facts, to check their reliability; to prove the truth of one's own judgments and refute erroneous inferences, to express one's opinions consistently, to argue them; 4) the formation of skills to transfer operations and techniques from one field of knowledge to another; predict the development of phenomena and draw sound conclusions; 5) stimulating the process of transition from thinking based on formal logic to thinking based on dialectical logic; improving the ability to use the laws of logic in educational and cognitive activities (*Vitvycjka, 2014*). Such tasks should take into account age, level of academic achievement, existing life experience of higher education students (*Shakirova, 2006*).

In order for students to think critically, they also need to develop: intellectual humility (understanding the limits of knowledge, attention to distortion, inaccuracies, limited vision); intellectual courage (willingness to meet and fairly assess other points of view, regardless of their own attitude to them); intellectual compassion recognition of the need to present oneself in the place of others in order to sincerely understand another's position); intellectual honest intentions (directness, recognition of the need to be truthful in one's own judgment in order to be consistent in intellectual standards; when selecting facts and evidence, adhere to strict standards, as we require others to act contrary to them); intellectual persistence (willingness to go to an intellectual goal, despite the difficulties); belief in the cause (belief that if people will formulate their own conclusions, developing their rational abilities, then, in the end, the higher interests and the interests of humanity as a whole will be served as best as possible); intellectual semantic justice (willingness to accept different points of view with understanding and evaluate them objectively) (*Paul, 1990*).

Critical thinking of the future teacher includes assessment and reflection of the mental process, mental and practical activities. These components are due to the properties of thinking (flexibility, pace of development of mental processes; depth, breadth, independence; consistency of thought, criticality), intellectual and personal qualities of the teacher (openness to the new, critical mind, divergent thinking) convergence, lability, stereotypes, impulsiveness, reflexivity of thinking) and are realized on the basis of the categorical apparatus of thinking of the teacher, which provides a sequence of logical inferences, making rational, informed decisions, helps to solve problematic pedagogical situations. The basis of critical thinking, which should be developed in the future specialist, are such qualities of mind as curiosity, flexibility, depth, discipline, organization of mental activity, critical thinking (*Semenova, 2018*).

The critical thinking of a future computer science teacher is understood as a type of thinking and evaluation activity, which is manifested in special skills necessary for effective professional tasks, and are formed in the process of the professional training during the study of computer science disciplines (*Ludova, 2009*).

The main principles that ensure the process of the developing students' critical thinking are: 1) identifying and refuting assumptions; 2) verification of actual accuracy and logical sequence; 3) consideration of the context; 4) study of alternatives; 5) use of available pedagogical potential; 6) axiological principle; 7) emotional intelligence (*Barbinova, 2018*).

In the psychological and pedagogical literature, there are attempts to distinguish the stages of the development of critical thinking by M. Veksler, T. Kyjenko-Romanjuk, O. Tjaghlo, M. Shakirova, S. Zair-Bek, I. Mushtavinsjka and others. (*Tjaghlo, 2008, Shakirova, 2006, Zayr-Bek et al., 2011*). Let's consider the stages (phases) of development of CT given by scientists in the table on which employment in the course of training is built (see Table 1).

Table 1

Developing stages of critical thinking

Stages / phases	M. Shakirova	O. Tjaghlo	S. Zair-Bek, I. Mushtavinsjka
I	The first stage. Actualization of knowledge, awakening of interest in the studied material, definition of the purposes of mastering of the information.	Analysis phase. Analysis of the problem and the proposed solution. Consideration of grounds and arguments	Evocation (call phase, awakening). Actualization of knowledge, awakening of interest in the studied material in the student, motivation for further work.
II	The second stage. Comprehension of new information, critical reading and writing.	Understanding phase. Clarification of incomprehensible concepts or judgments, the essence of value and descriptive assumptions. Consideration of conditions that allow to accept arguments.	Realization (phase of comprehension of new information). Comprehension of new information, meaningful reading, writing, direct work with information.
III	The third stage. Reasoning or reflection, the formation of personal opinion, attitude to information. The fourth stage. Generalization and evaluation of information, problems, ways to solve it, own capabilities.	Evaluation phase. Assessment of the problem and correctness of conclusions, solutions. Evaluation of reasons, logic of constructed inferences, argumentation. Reflection (reflection phase). Information analysis, interpretation, reflection	Reflection (reflection phase). Information analysis, interpretation, reflection
IV	The fourth stage. Generalization and evaluation of information, problems, ways to solve it, own capabilities.	Criticism phase. Review the solution of the problem, check for errors, find ways to eliminate them, strengthen reasoning.	

Described by S. Zair-Bek, I. Mushtavinsjka technological phases of the development of critical thinking correspond to the model "Technologies of development of critical thinking through reading and writing", developed by American researchers Ch. Temple, K. Meredith, J. Steele, etc., which has recently acquired popularity in pedagogical practice (*Crawford et al., 2006*). Each phase of the technology of the development of critical thinking is characterized by the use of certain methods and techniques of working with information. The application of techniques and adherence to the technological structure of the educational process is focused on the development of the subjective position of students, achieving a high level of critical thinking.

The stages (phases) of CT development given by scientists in Table 1 have much in common. The selected fourth stage of generalization and evaluation of information corresponds to the phase of reflection of the technology of development of critical thinking.

Based on the analysis, we can identify the following stages of the development of critical thinking of future computer science teachers during classes (see Fig. 1. Stages of the development of critical thinking of future computer science teachers).

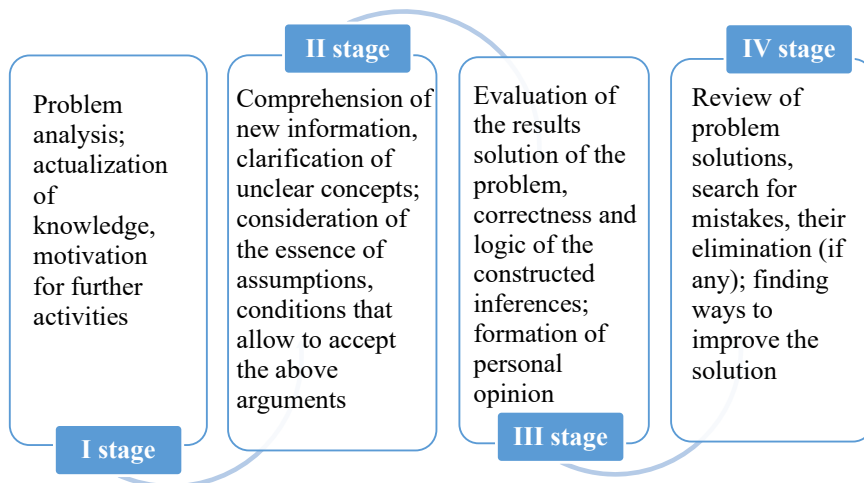


Fig. 1. Development stages of critical thinking of future IT teachers

According to CT researchers and media educators M. Solodokhina, S. Terno, D. Halpern, M. Shakirova, etc., among the most effective ways to develop critical thinking are solving problem, heuristic problems, using analysis of media texts, interactive methods: dialogue, discussion, brainstorming, case method, STEM cases, game technologies: role-playing, simulation games, etc. It should be emphasized that the problem, which provides internal motivation for educational activities, is a key condition for the development of CT, encourages independent acquisition of knowledge (*Terno, 2014*).

4. Conclusions

Thus, critical thinking is an integral part of the professional competencies of the future computer science teacher, an important component of modern higher education.

Under the critical thinking of the future teacher of computer science, we understand the type of thinking and evaluation activities, which is manifested in special skills that are formed in the process of professional training, and which are necessary for the effective solution of professional problems.

Based on the theoretical analysis, the principles of development of critical thinking are outlined and four stages of development of critical thinking of future computer science teachers are singled out; It was found that the basis of critical thinking, which should be developed in the future specialist, are such qualities of mind as curiosity, flexibility, depth, discipline, organization of mental activity, critical thinking.

The usage of different methods and technologies for the development students' CT requires compliance with certain pedagogical conditions: taking into account age, level of academic achievement, existing life experience. A computer science teacher who has developed critical thinking will be able to master the necessary professional competencies, productively carry out pedagogical activities, self-improvement, reflect on their own pedagogical achievements and set new goals.

We see the prospects for future research in finding out the peculiarities of the development of critical thinking in future IT teachers in the process of professional training.

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CURRENT TRENDS IN NURSING EDUCATION: FUNDAMENTALS OF STIMULATING TUTORING

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Summary

The paper studies the relevance of implementing of the simulation tutoring in the process of training nurses, its importance in mastering knowledge and skills and forming professional preparation of graduates. The purpose of the article is to analyze the effectiveness of the methodology of simulation tutoring of future specialists at the stage of training in an educational institution. General scientific research methods were applied: generalization, study, systematization of scientific and pedagogical, methodological literature, periodicals, internet resources; practical experience of the center for stimulating training of Cherkasy Medical Academy was used to assess the effectiveness of simulation tutoring of future specialists in specialty 223 Nursing, the results of the study were substantiated and graphically reflected. It is proved that modern trends in nursing education allow applicants to learn and practice without risking the lives and health of patients. The results of the study indicate that nursing as a specialty occupies a stable place in the structure of medical personnel training, it is interesting and promising for young people, most of the graduates are satisfied with the quality of education that meets their needs and expectations, the obtained professional training is multi-faceted and will allow them to engage in various activities in the future. When forming educational programs and curricula of this specialty, particular attention should be paid to professional disciplines and more widely introduce simulation tutoring modules into the educational process of nurses.

Keywords: simulation tutoring, nursing education, educational trends, pre-graduate training.

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1. Introduction

Formulation of the problem. One of the problems of training specialists in medical educational institutions of Ukraine is a broad theoretical training combined with a low level of practical skills. This is influenced by many negative factors that have recently been observed in medical education: a low number of classrooms and a significant number of hours for self-study in the curriculum (up to 2/3 of the total amount), the introduction of distance learning during a difficult epidemic situation caused by the COVID-19; a decrease in the motivation of educational applicants to their chosen profession due to lack of funds in the industry and low wages; conducting a licensed integrated exam at the pre-graduate stage of training. Preparation of applicants for the license exam is carried out by educational institutions during the final (graduate) year of study at the expense of hours allocated for classroom training and at the expense of hours of clinical educational and industrial (pre-graduate) practice. In addition, the traditional form of training provides for an average of up to five years of adaptation to the profession in clinics, not to mention social aspects (sequence of work functions, common interests, team interaction, common decision-making, which is not taught in a medical educational institution).

The aim of the study was to assess the effectiveness of the method of simulation tutoring of future medical specialists at the stage of training in an educational institution and analyze the relationship between the level of their professional training (basic, medium complexity and high-tech skills) and socio-demographic characteristics (age, gender).

The research hypothesis contained the following assumptions:

- 1) the well-established opinion that it is possible to acquire skills only in the course of independent work at the patient's bedside sharply contradicts the world and domestic statistics of medical mistakes made by young specialists;
- 2) the problems, faced by graduates, include fear of patients; limited access to manipulation due to patients' unwillingness to receive procedures from less experienced specialists; lack of time to train each practical skill.

The low level of professional training of future doctors leads to a high risk to the patient's health. Therefore, the main task of middle and higher medical education is to strengthen the practical training of graduates while maintaining the proper level of theoretical knowledge.

Place and time of the study. In the period from September 14 to October 03, 2020, Cherkasy Medical Academy conducted an online survey of graduate students of specialty 223 Nursing to determine the socio-demographic characteristics of respondents. The second part of the online survey was conducted from March 15 to April 09, 2021 in order to assess applicants' own level of mastering practical skills. The questionnaires were distributed through Google Forms and the Moodle educational platform. Also, during the first and second semesters of the 2020-2021 academic year, the permanent Center for stimulating training of the academy prepared these applicants for professional skills using simulation technologies.

The study was conducted using the following **methods**:

- 1) theoretical – *generalization* of scientific research on the use of simulation training methods in the preparation of specialists with medical education; *systematization* of the source base, Internet resources, practical experience of the academy;
- 2) *mathematical and statistical methods* allowed us to substantiate and graphically present the study results on the effectiveness of the method of simulation tutoring of future medical specialists at the training stage;

Literature review. The analysis of foreign and domestic sources has proved that modern methods of teaching professional skills are the use of simulation technologies, which provide for the creation of training rooms and/or incentive training centers in educational institutions with the appropriate equipment for medical (nursing) manipulations. At the same time, most teachers of medical educational institutions consider it necessary to use models and simulators. However, a number of teachers believe that no modern computer simulator will ever replace working at the patient's bedside, when a student independently performs manipulations under the guidance of a teacher or an experienced specialist of a healthcare institution.

Ukrainian researchers, studying the domestic and foreign experience of stimulating training, consider it one of the ways to ensure the competitiveness of specialists (*Artemenko et al., 2015: 67*), and the main condition for acquiring clinical professional skills is to create a safe educational environment. They consider objective assessment, the possibility of repeating manipulations, the absence of risk for patients, unlimited access to the learning environment, and the possibility of debriefing to be the advantages of stimulating training. According to medical scientists, since simulation is a powerful learning tool, it can become an addition to traditional teaching methods (*Kasyanova and Bodnya, 2017: 14*).

T. Kryuchko and co-authors proposed a technology for the formation of professional communication skills in an artificially created environment of professional communication

(Kryuchko, 2018: 136), and the primary task of the teacher is to acquire coaching skills, which should be taken care of by the system of training teachers for simulation centers.

The use of internationally recognized programs, the solution of organizational and educational issues is proposed by O. Starets when introducing simulation training methods into the educational process (Starets, etc., 2018: 94). At the pre-graduate stage of training, it is considered appropriate to use manipulation protocols (algorithms), in the internship – the formation of communicative competence among applicants, and every five years, during continuous professional development, it is recommended to update the knowledge and skills of emergency medical care.

Simulation tutoring is considered by many authors as the basic platform of modern education (Zhukova et al., 2020: 222), it complements the training of applicants for independent clinical practice, contributes to the formation of their professional competence (Ilashchuk, Mikulets, 2017: 11), increases the interest of applicants in the learning process, becomes an integral part of the professionalism of future specialists and the most optimal form of training in the administering of emergency medical care when working out scenarios (Korda, etc., 2016: 18).

A review of the works of Ukrainian researchers has shown that the modern scientific literature does not sufficiently cover the issues of simulation tutoring in professional education of specialists with incomplete, basic higher and pre-higher education. The authors' attention is focused on the processes of formation of professional training of future specialists with “complete” higher education.

Nevertheless, the analysis of foreign sources revealed the accumulation of extensive experience in using simulation technologies in the education of nurses. Attitude to the profession of a nurse as not an assistant doctor and executor of medical appointments, but as an independent member of the patient care team, the change in the educational vector from medical to nursing education has contributed to an increase in the importance of this profession in society and the medical community.

In particular, the authors note that training nurses based on modeling is a common strategy for improving their skills (Hegland et al., 2017: 6), simulation training can be an element of an individual strategy to improve the quality of healthcare and reduce errors in patient care, so there is a need for quality educational programs to establish which modeling strategy and organization is most effective during the implementation of the educational process.

Evidence suggests that simulation training improves the clinical knowledge and performance of nurses in recognizing and managing clinical deterioration in simulated environments (Chua, 2017: 122). Clinical education in nursing, according to J.H. Kim (Kim et al., 2016), aims to integrate theoretical knowledge from books into practical knowledge in real-world situations and help students develop their skills in solving patient problems. According to the researchers, simulation-based clinical education is a useful pedagogical approach that provides educational applicants with the opportunity to improve their clinical and decision-making skills through a variety of real-world situational experiences without compromising patient safety. The complexity of health systems in different countries puts patient safety at risk (Escudero et al., 2019), therefore, clinical modeling is a very valuable training method aimed at improving patient safety and is an important option for achieving a safety culture.

The purpose of the study of scientists S.A. Mohamed and I.H. Fashafsheh was an assessment of the effect of simulation training on the communication skills and clinical competence of nurses (Mohamed, Fashafsheh, 2019), the results of the study proved that the competence to provide medical and emergency care and communication skills significantly increased in students after participating in the simulation program.

M. Aebersold, after studying several simulation learning models, notes that simulation (using computerized dummies) has moved to a central stage in nursing education (Aebersold, 2018). Simulation is no longer seen as an “additional component” in mastering nursing programs. It is extremely important in modern education to integrate modeling throughout the entire educational program. Clinical situation modeling and integration into nursing education of high-tech skills modeling (HFS) will effectively provide a safe environment for learning and applying the necessary skills for nursing practice (Onello, Regan, 2013), will contribute to improving individual and leadership skills in a safe environment before meeting with real patients.

2. Evaluation of training efficiency of the simulation method of future medical specialists at the training stage

The study of the effectiveness of the simulation tutoring methodology was carried out according to the principle that the simulation tutoring of nurses at the stage of training in an educational institution and in the field of Continuing Professional Education should be specific (technical (manipulative) and non-technical skills) and subject-specific. Also, the training program in nursing disciplines includes basic skills (patient care); skills of medium complexity – monitoring and methods for assessing the patient's condition; non-injection use of drugs; high-tech skills (special training, knowledge of anatomical and topographic features, physiology and pathophysiology, etc.).

The study was conducted during the 2020-2021 academic year from September 14, 2020 to April 09, 2021. The first stage of the study included an online survey of graduate group students of specialty 223 Nursing of the educational qualification level “junior specialist” and the level of education of the first (Bachelor's) in order to determine the socio-demographic characteristics of respondents. Total participants took part in the survey:

- 55 respondents who studied on the basis of basic general secondary education, the duration of study is 4 years;
- 19 respondents who studied on the basis of complete general secondary education, the duration of study is 4 years;
- 11 respondents who studied on the basis of the educational qualification level “junior specialist”, the training period is 1 year.

Thus, according to the level of previous education, the following groups were formed: 64.7% on the basis of grad 9, 22.3% on the basis of grade 11, 13% on the basis of the educational qualification level “junior specialist” (fig. 1).



Fig. 1. Distribution of respondents by the level of previous education, as a percentage

By age, respondents were distributed as follows: 19 years – 45.8%; at the age of 20 – 32.9%; 21 years – 15.3%; above 22 years – 6% (fig. 2).

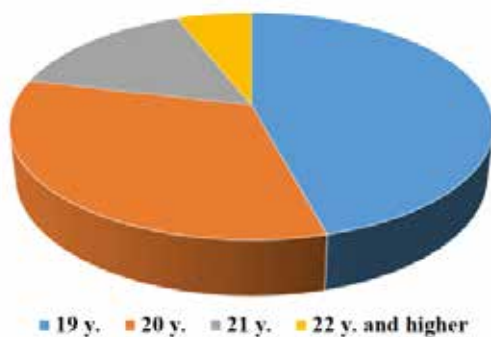


Fig. 2. Distribution of respondents by age, as a percentage

91.8% of respondents are female, 8.2% are male.

The training programs of nursing disciplines provide for the use of simulation techniques: in the first year when studying the discipline fundamentals of Nursing and in the second and third years when studying the disciplines of a special (professional) component. The undergraduate nursing program also includes simulation training modules in clinical nursing disciplines. Simulation tutoring is carried out in the Academy's Simulation Training Center, which is equipped with simulation models and simulators of various levels of complexity: for practicing basic skills – models of 1-4 reality levels, for modeling of clinical high-tech skills (HFS) – models of 5-7 reality levels.

Simulation tutoring of nurses at the pre-graduate stage of training is carried out sequentially at the following levels:

1. Theoretical training – visualization)-receiving theoretical training before or after the start of simulation tutoring, demonstrating the manipulations according to protocols, viewing diagrams, video clips, etc.

- 2 Development of basic skills under the guidance of a mentor (trainer): general (first aid) and nursing skills: is carried out at a tactile level using special equipment (anatomical models, phantoms, simulators) that passively respond to intervention.

3. Performing individual “special” manipulations – requires special training, entails personal responsibility, obliges the educational applicant to perform high-quality procedures; training is carried out on special equipment with the feedback and with the help of special signals informs about the correctness of performed manipulations.

4. Imitation of individual professional activity – is carried out on automated simulators, computers control the correctness of nursing interventions, and the learning process is also accompanied by trainings related to the formation and improvement of activities in general, and not just the acquisition of specific skills; specific skills in this case become a means of solving a professional problem in the course of acquiring their own experience (competence).

5. Simulation of the medical (nursing) team duties – work of a nurse in the manipulation room, operating unit, preparing the patient for surgical interventions and/or for conducting functional studies, etc.; trainings related to the formation and improvement of activities in general are conducted simultaneously. Training takes place in small groups, and the interaction

of team members in the process of providing patient care becomes important. In the course of training, nurses acquire leadership and communication competencies.

6. "Standardized patient" technology is an interactive technology used before sending students to the practice, a phantom patient simulator is used, which is able to change its functional state, depending on the tasks set.

7. The most difficult level of simulation tutoring is training at the patient's bedside; this stage is carried out in the workplace, without the participation of patients (using mannequins or phantom simulators) using medical equipment, which makes training more productive, and most importantly safe for the patient.

An approximate scheme of nurse simulation training modules is shown in Figure 3.

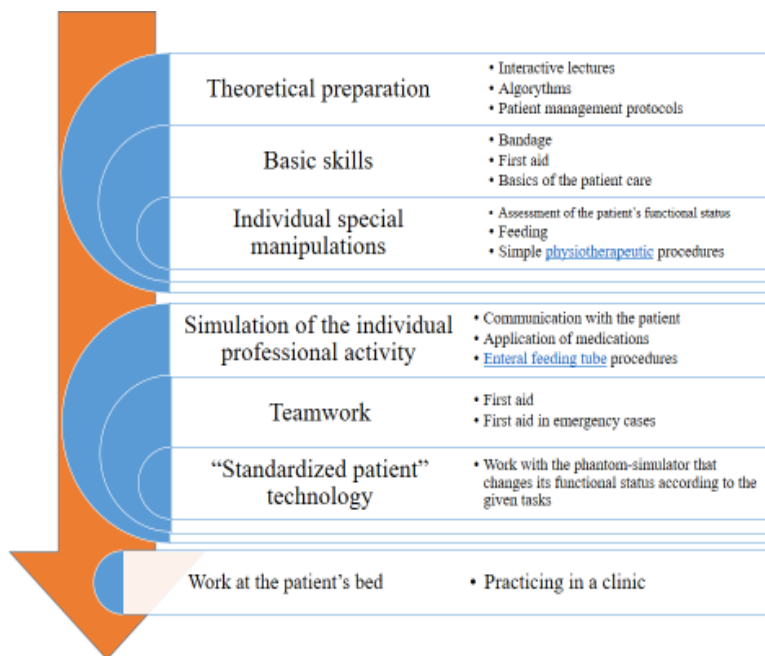


Fig. 3. Sample scheme of stimulation training modules specialty Nursing

The formation of professional skills in simulation training technologies becomes effective only if nursing interventions are performed consistently, according to certain algorithms, in compliance with the standards of nursing procedures. During the lesson, each student is asked to complete a situational task according to a certain algorithm. Algorithms of nursing interventions consist of general modules: 1) task conditions (information about the intervention and availability of equipment); 2) patient intake; 3) activity (the student's ability to perform the intervention); 4) feedback (information about the result obtained using special functions of the simulator).

The success of each class depends on the following certain conditions: 1) the simulation training program should be built from simple to complex nursing interventions (from the simplest nursing manipulations to high-tech ones); 2) the teacher-trainer should analyze individual manipulations causing difficulties for applicants in performing them; 3) simulation

trainings should not look like monotonous and inactive demonstrations; 4) classes should be built according to a certain plan, in which each subsequent task would organically complement the previous one.

An important stage of simulation training is quality control of the acquired knowledge and practical skills. The training is accompanied by constant monitoring, which is carried out by the teacher. In the course of performing situational tasks, the necessary indicators are recorded and a final assessment is formed at the end. Upon completion of training, assessment control (certification) is carried out in each of the professional disciplines, during which the final tasks are performed and the final assessment is formed based on the results of the points received. The assessment is carried out on a 200-point scale, the National Assessment Scale and the ICTS scale.

According to the results of our observations and the program of professional modules, the most acceptable means of control in the structure of simulation tutoring is the control according to the scheme in four stages: initial, current, intermediate and final. The main purpose of the initial control is to assess the initial level of knowledge and skills of educational applicants, their motivation for the chosen specialty, determine the feasibility of simulation training, identify gaps in theoretical training or in the acquisition of basic skills. Current control is of a corrective and educational value, the formation of target skills and abilities is evaluated, applicants work out a situational task on the simulator, and the trainer monitors the correct execution of manipulations. The main function of the boundary control is observation, assessment, correction, and only partially motivation and training. Assessment is carried out at the end of the module (section) in order to obtain information about the task success and decide on the transition to the next stage of training that is acquiring the next skill. The purpose of the final control is to determine the minimum required level of training. All four stages of control during stimulating tutoring are fully applied and complement each other naturally.

The objectivity of expert assessment is ensured by specially structured assessment checklists filled out by several expert-teachers of clinical departments (table 1).

Table 1

**Structured checklist for evaluating the practical skill
“Subcutaneous injection (insulin administration)”**

Criterion	Ratings for each criterion (tick appropriate answer)				
	2	3	4	5	6
Procedure preparation Prepare the patient for manipulation psychologically	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Get consent to perform it	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Clarify individual sensitivity to the drug	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points

Table 1 (Continued)

1	2	3	4	5	6
Підготувати оснащення	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Wash your hands under running water twice with soap, dry them with a paper or individual towel, and treat them with alcohol or hand sanitizer	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Wear a mask and gloves	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Check the label on the package with the treatment sheet (name, concentration, quantity, expiration date)	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Performing the procedure Prepare an insulin syringe and an insulin vial before performing the injection. Collect insulin from the bottle (after wiping the rubber cap with alcohol, let the alcohol dry) in accordance with the prescribed dose, taking into account that 1 ml contains 40 or 100 units of insulin (check with the bottle)	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Help the patient take a comfortable position	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Wipe the injection site twice with cotton balls soaked in alcohol, let the alcohol dry	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Treat your hands with alcohol	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Remove any remaining air from the syringe	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points

Table 1 (Continued)

1	2	3	4	5	6
Grasp the subcutaneous skin at the injection site with the index finger and thumb of the left hand	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Insert a needle into the base of the formed fold for 2/3 of its length at an angle of 30-45 °	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Release the crease and slowly inject the medicine	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Apply a dry sterile cotton swab to the injection site	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Pull out the needle with a quick movement	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Ask the patient about general state	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
End of the procedure Disinfect used equipment	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Wash and dry your hands	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points
Make a record of the procedure and the patient's response to it in the relevant medical documentation	Not done	Gross mistake 120-149 points	Done with errors 150-164 points	Done not confidently 165-179 points	Done correctly 180-200 points

In order to evaluate complex skills combining teamwork, clinical thinking, knowledge and skills, an integrated objective assessment is used on the basis of the virtual systems and robot simulators of the patient. The information forming system for the final assessment (compliance of an educational applicant with the requirements of the educational standard in the specialty) should take into account the data of testing theoretical knowledge, professional skills and the results of expert assessment.

The second stage of the online survey of applicants for final courses of the specialty nursing was conducted at the end of the second semester before students began to enter a pre-graduate practice. For this purpose, a questionnaire with the following questions was developed:

a) whether applicants are satisfied with the quality of education received and whether they believe that the knowledge gained during the years of study at the academy will help them to provide better care to patients; 2) how do you assess the effectiveness of the simulation training methodology and the knowledge, skills and abilities you have gained during training on the basis of the Simulation Training Center; 3) whether you have received enough knowledge to analyze clinical syndromes, justify the methods/principles of diagnosis, treatment, prevention within the nursing process.

The analysis of knowledge quality assessment is shown in Figure 4.

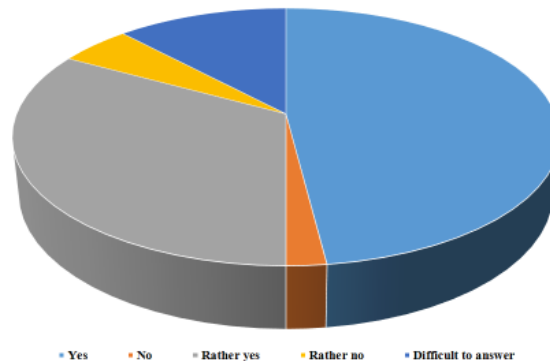


Fig. 4. Respondents' answers to the question: "Are applicants satisfied with the quality of education received and does the education received contribute to better provision of medical services?"

The results of the survey indicate that nursing as a specialty is gradually taking a stable place in the structure of medical personnel training, it is interesting and promising, as proven by the fact that 81% of applicants are generally satisfied with the quality of Education received and believe that the professional knowledge and skills obtained during the years of study at the academy will help to provide better care to patients, 7% of applicants have not yet decided on their future profession, 12% did not answer, which most likely means that they have not determined the essence of the activities that they will be engaged in in the future.

Evaluation of the effectiveness of the simulation tutoring methodology and the acquired knowledge and skills during training on the basis of the Simulation Training Center provided with the following results (fig. 5).

Thus, the majority of students 58% consider the methodology of simulation tutoring based on the Simulation Training Center effective, 37% of students are generally satisfied with the teaching methodology and received the necessary basis for future professional activity that meets their needs and expectations.

The question "Do you have enough knowledge to analyze clinical syndromes, justify methods/principles of diagnosis, treatment, prevention in the nursing process" got the following answers: 78% of respondents answered positively, 3% gave a negative answer, 19% of respondents generally received enough knowledge and are able to either start or continue their professional development within the chosen specialty.



Fig. 5. Respondents' answers to the question: "How do you assess the effectiveness of the simulation training methodology?"

3. Conclusions

The conducted research proves that the main tasks of simulation tutoring are solved when using models of 4-7 reality levels. Creating clinical situations close to real life in simulation training centers and training rooms, improving practical manipulations in conditions close to real life, modern equipment, a dummy (or volunteer) that independently responds to the intern's intervention, contributes to improving the professional level of nurses and their readiness to apply knowledge and skills in clinical practice. Students under the guidance of a teacher-trainer, through repeated repetition and analysis of mistakes, achieve the desired level of preparation for working with equipment, patient, team, master general and professional competencies. When forming educational programs in the specialty of Nursing, it is necessary to provide for simulation tutoring of applicants for education in professional clinical disciplines, alternate the stages of traditional training with simulation and control tools with the assessment of skill level indicators when moving from one module to the next. In order to increase the effectiveness of simulation tutoring, it is necessary to ensure re-education both in the process of direct (pre-graduate) training of nurses, and in the system of continuing professional education.

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NOMINATIVE EMOTIVE UNITS IN POETIC TEXT: A COGNITIVE STUDY

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Summary

The paper is focused on studying nominative emotive units in poetic texts, that are thought to carry the generalized information about the emotions and feelings of communicants and thus are devoid of any poetic potential. However, this paper undertakes an attempt to prove the opposite. The nominative emotive units are analyzed with regard to the methods of cognitive analysis. It has been stated that such linguistic units are based on emotional concepts that embrace affective and factual information pertaining to emotiogenic situations. It has been also stated that the emotional concept has scalar characteristics which are associated with the dynamic nature of feelings. The combination of nominative emotive units renders the ontological aspect of emotions. The stages of the emotive unit formation are modelled and outlined in the paper to show that communication of emotional imagery is possible through them. The paper also proves that nominative emotive units render the ontological aspect of feelings flow with a high degree of accuracy. At the same time they demonstrate a number of aesthetic features.

Keywords: emotiology, image of emotion, cognitive and affective structure, emotional concept.

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1. Introduction

Poetic texts have long been the point of interest among many scholars who worked (and are still working) within different paradigms of poetics and highlighted many aspects of such kind of text: structural (R. Jakobson, D. Magomedova), semantic (Yu. Tynyanov, A. Stepanov, O. Sedakova), pragmatic (M. Beloglazova, K. Kuliomina, M. Yegorov), semiotic (Yu Lotman) and cognitive (R. Tsur, M. Freeman, L. Byelyekhova, T. Gorchak, O. Marina). At the moment, new interdisciplinary studies are being initiated with the aim to explain the complex nature of such poetic constructs as verbal poetic images, the image of persona, etc. Today, the many linguists throughout the entire world (R. Tsur, M. Burke, N. Bolotnova, M. Nashkhoyeva, L. Byelyekhova) are focused on the issues of how the emotions of the addresser are fixed with linguistic means in poetic texts. Their research work in this direction has set up a new research field which is known as “emotiology”.

Many points have been clarified about the linguistic representation of human emotions: 1) the structure of the emotional concept (*Vezhbytskaya, 1996*); 2) the structure of specific emotional concepts (*Vorkachiev, 2012; Krasavsky, 2001*; and other); 3) the role of metaphorical structures in conceptualizing the emotions (*Lakoff & Johnson, 1980*); 4) the verbal representation of emotions in the emotive units (*Shakhovskiy, 2016; Nizhnik & Galaidin, 2021*); 5) the cultural aspects of rendering emotional images into the target language in the process of translation (*Babelyuk, 2017; Gliebkin, 2010*) However, the present-day findings do not give a comprehensible picture of the complex nature of lexical units that name emotions in poetic texts. The point seems to be interesting because nominative units naturally carry the

generalized information about the referents, and this is not quite appropriate for poetic texts which offer unique viewpoints on mundane things. So, we will first try to get an insight into the conceptual ground of the nominative emotive units and then trace how the emotional concepts get organized and manifested in the nominative emotive units of the poetic texts to render the ontological features of feelings (the flow of emotions) of the addresser. The study is carried out on the basis of the poem “Cycle of my emotions” by Evy Moore (*Moore*) which abounds in nominative emotive units.

The current study is backed up with two statements. The first one being the quote by the famous American poet Robert Frost (1874 – 1963) who once explained the nature of poetry saying that “[it] is when an emotion has found its thought and the thought has found words”. The second statement belongs to the contemporary scholar V. Gliebkin who commenting on the theory of emotional concepts by A. Wierzbicka stated that “there is next to no distance between the emotion itself and its representation in the language” (*Gliebkin, 2010*).

This study, on the one hand, goes in line with the research methods pertaining to linguistics of emotion (V. Shakhovsky et al.), and on the other hand, it uses the methods of cognitive studies of linguistic units. In order to interpret the psychological aspects of emotions, we refer to psychological theories of human emotions (C. Izard).

2. Emotional or emotive?

We would like to start with the clarification of the terms that seem to be identical, and thus they are often misinterpreted and misused. They are the adjectives *emotional* and *emotive*. The first one derives from the noun “emotion” which is “a complex reaction pattern, involving experiential, behavioral, and physiological elements, by which an individual attempts to deal with a personally significant matter or event” (*APA Dictionary of Psychology*). If we refer to the etymology of the term *emotion*, we will clearly see that this notion is highly dynamic. The components of the word express movement from within, setting something or somebody to motion; stirring; agitating (< Middle French *émotion* < Old French *emouvoir* “stir up” < Latin *emovere* – moving out from; within the word the prefix *ex-* stood for “out, from” and the stem *movere* meant “moving” < PIE stem **meue-* “pushing”) (*Online Etymology Dictionary*). So, adding of prefix *e-* to the word *movere* resulted in the meaning “moving out from”. Thus, every emotion is associated with some kind of action.

The terms *emotion* and *emotiveness* are closely connected with each other as primary and secondary notions. The second term is coined specifically for linguistic purposes to differentiate the emotional state of a communicant from the verbal manifestation of such state (*Shakhovsky, 2016*). The adjective *emotive* is suggested and widely used by linguists to point out at the manifestation of emotions in texts. So, the emotive unit carries the information of the emotional state or feeling of the speaker. The adjective *emotive* gives rise to the noun *emotiveness* (or its less common lexical variant *emotivity*) – the term denoting the category of a fictional text which appears as the unity of form (stylistic means), the meaning (the emotional images that underlie them) and function which lies in rendering the author’s emotions through such stylistic means.

The emotiveness is represented in the text by emotive units. Emotive units are the linguistic units of different language levels that carry fragments of emotional experience of the author. With regard to their size and amount of information that they carry, the emotive units can be of two types: 1) *micro-* and 2) *macro-* emotive units. The first group is represented by stylistic means of phonological, graphical, morphological, lexical or syntactical levels of

the language; they are usually used to mark fragments of emotional experience of the author or nuances of their emotional states. According to their manner of manifestation in the text, microemotive units fall into *explicit* (units of *nominative* and *descriptive* character) and *implicit* (units of expressive character). A macroemotive unit is defined as an emergent implicit textual construct. It goes in line with the message of a poetic text. In its nature, macroemotive unit is the image of complex positive, negative, or ambivalent emotion; or a chain of emotive images that reflects the flow of emotions of a communicant.

A nominative emotive unit is a lexical unit that marks explicitly basic, commonly known emotional images. The words such as *happiness*, *sadness*, *anger*, etc. are the examples of nominative emotive units.

3. Conceptual ground of nominative emotive units

We will now try to reconstruct the conceptual ground of nominative emotive units. The conceptual analysis will help to outline the structure and content of the emotional concept. It will later give us a possibility to see which pieces of information are highlighted/hidden in nominative emotive units which create poetic qualities of a text.

Nominative emotive units appear as a result of affective and cognitive processes or mechanisms of the writer. The essence of this mechanism can be explained in the following way: every kind of stimulus triggers some sort of affective response in a person. Thus, the cognition goes hand in hand with emotionality of a person. Affective and cognitive mechanisms are inseparable from each other though they have different ontological properties (*Piazhe, 1996; Izard, 2006; Damasio, 2005*): the first are diffuse, and they either accompany the cognitive processes (whose essence lies in structuring the information that comes from the natural environment) or vice versa stimulate them.

The recurrence of life situations sets the links between the factual information and its emotional backing in the mind of a person. The fragments of information may then function as triggers of specific emotional responses. While reflecting on some life issues, the poet expresses his own attitude to them (*Kukhareno, 2004*). Thus, the fictional text appears as the product of selection of the fragment of real life and the reflection of the individual manner of its perception (*Kukhareno, 2004*). The selection is not haphazard, but is subdued to different mechanisms including emotions (*Kukhareno, 2004*) of the writer.

The regular perceptive and affective cooccurrences lead to the formation of the cognitive and affective structures (CAS) in the mind of the person. CAS is defined as a mental construal that carries the information about the emotional perception of some piece of information by a person.

CAS can be of different configurations. They may appear as a combination of 1) drive (a physical need) and a cognitive process; 2) emotion and a cognitive process; 3) the combination of the mentioned above patterns (*Izard, 2006*).

CAS can be simple and complex. The simple ones reflect the basic emotions of a person. The complex CAS can embrace the evaluative components, ideals, and human values. Thus, love, self-esteem, pride, dignity and courage are naturally regarded as human values that are based on emotions. The whole network of CAS can become the basis of the world view of a person or ideology of a group of people.

The author can be fully, partially, or absolutely unaware about the affective component of CAS. Therefore, it may stay in his subconscious sphere and get activated in a process of poetry writing.

The most recurring and stable CAS that a person differentiates from other similar constructs become the units of thinking which are otherwise known as *concepts*. So, some concepts embrace both notional and emotiogenic sides. They appear to be not only as the units of thinking, but also as emotiogenic units or units that can trigger the emotions of the communicant (Vorkachev, 2012: 42, 43; Krasavsky, 2001: 29).

The emotional concept (it is called “emotional”, but not “emotive” since it is devoid of the pragmatic potential which is always present within the emotive unit of a language) is the mental representation of the inner feeling in the verbal profile of a person (Kutuzova, 2015: 398]. Emotional concepts form the emotional map of an individual or a language community (Krasavsky, 2001: 29). Among the characteristic features of the emotional concepts, Shirokova distinguishes abstractness, volatility, and diffuseness. Emotional concepts relate to other concepts through the associative links (Shirokova, 2011).

The emotional concept has scalar characteristics. It means that emotion is usually conceptualized as a dynamic phenomenon which has 1) the starting point; 2) the uprising trajectory which leads to its 3) peak (the point of the highest intensity); 4) the down-falling trajectory (decrease of emotional tension) which leads to the 5) “affective zero” point. Fig. 1.

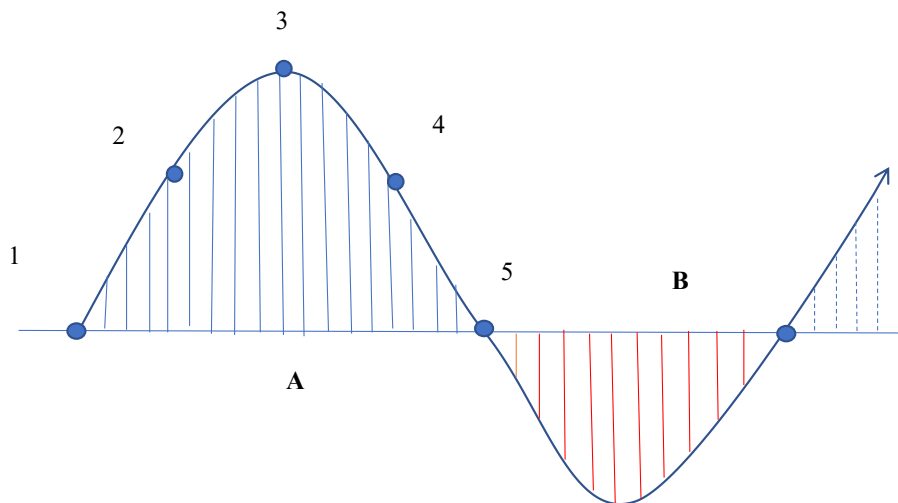


Fig. 1. Scalar features of emotional concept

If the movement of emotion through all stages of its development is over, the image of emotion can be superseded with its counterpart within the context of the literary work (Luk, 1982; Shirokova, 2015). The joining between the two emotional concepts occurs in either positive or negative directions depending on the chain of emotiogenic situations.

The other theory explains the emotional concept as a mental unit which contains the condensed representation of the emotional situation (Vezhbytskaya, 1996). The emotional concepts are language universals with the help of which it is possible to represent the basic emotions of a person explicitly (Vezhbytskaya, 1996: 326). A. Wierzbicka suggested the language models that represent the behavioral patterns and scenarios that underlie the feelings of a person (Vezhbytskaya, 1996: 326).

The analysis of prototypical situations resulted in suggesting two prototypical models of emotions: 1) to feel sth as a result of some thoughts; and 2) to feel like sb who was thinking likewise (*Vezhbytskaya, 1996: 337*).

So, the emotional concept is a mental construal of the experienced emotion or feeling that contains condensed information about the emotion-inducing situation.

The stages of the formation of the emotive unit are shown on Fig. 2. The stimulus “S” evokes interoceptive feeling which may be of positive/negative valency and low/high intensity. The awareness about the feeling (including getting knowledge of the emotional situation, emotional triggers) stipulates the formation of CAS. The formation of awareness about the affective component of CAS results in the formation of the emotional concept. The verbalization of the emotional concepts leads to the formation of emotive units including the nominative ones.

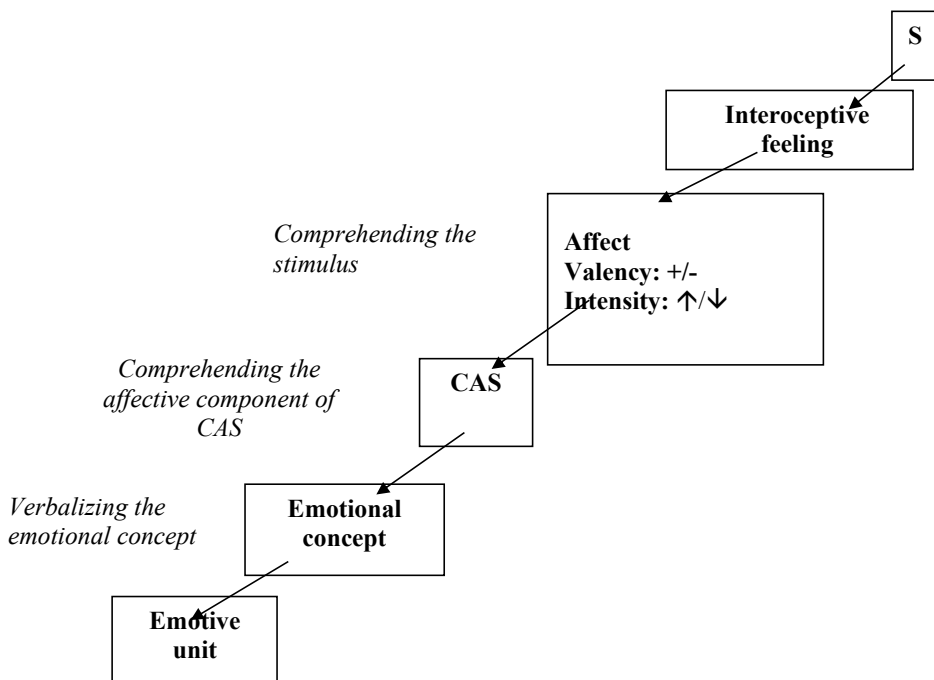


Fig. 2. Stages of emotive unit formation process

4. Nominative emotive units and aesthetic writing

Let us now consider how nominative emotive units function in the piece poetry written by Evy Moore (*Moore*). The analyzed text is notable for the high compression of verbal means. It means that its full sense can be grasped only through a thorough analysis of its conceptual structure.

Love leads to pain
Pain leads to hatred
Hatred leads to sorrow
Sorrow leads to despair
Despair leads to pleasure
Pleasure leads to happiness
Happiness leads to love
Love leads to pain

The verbal design of the poem explicitly reveals the ontological characteristics of feelings of the addresser. Thus, we observe the ephemeral character of feelings of the persona. One feeling transforms into the other. Taking into account the fact that an emotion always pops up as a reaction to a certain stimulus, and that image of feelings are interoceptive constructs, in the context of this poem, the emotive units highlight the affective side of CAS, whereas the situational details that induce the mentioned feelings stay either hidden or implied. They can be interpreted only with regard to the typical situations that trigger similar feelings in a person who is faced with them.

On the verbal level of the poem, the emotive units are represented by the lexemes *love – pain – hatred – sorrow – despair – pleasure – happiness* that mark basic feelings. Emotional concepts, activated by the emotive units contain the information about the CAS of the author (the valency and intensity of the affect, and peculiarities of the situation that caused such feelings) in the condensed form.

Thus, in the context of this poem, the image of feeling of *love* acquires a negative valency and at the same time high intensity. The agitation that is embodied in the external image of pain is marked verbally by the word *pain*.

The excess of the inner pain of the persona transforms into the feeling of *hatred* which supposedly appears due to the inability to approach the beloved person.

It is universally perceived that *hatred* is marked by the negative valency and high intensity, so exhausting character of this feeling usually makes a person get rid of it (through putting up with the situation that settles).

Thus, the decrease of the intensity of *hatred* transforms this feeling into the emotion of sorrow because of the lost love. Deepening affective characteristics of *sorrow* in the aspect of negative valency and low intensity results in the emergence of the interoceptive feeling of *despair*. The excess of *despair* leads to the exhaustion of this inner sensation, and this makes the emotional structures of the poem move in the opposite direction. Thus, the exhaustibility of the experienced feeling leads to relief – the feeling of *pleasure* – the affect with the positive valency of the low intensity. The rising of this affect results in the peak of this feeling – the emotion of *happiness*, which is associated with a presence of a particular person. So, the author returns to the image of love, the exhaustion of which again leads to inner pain.

The mercurial qualities of feelings are marked in the text by the cases of catch repetitions which on the textual level group to form the framing structure. Switching between the emotive units throughout the poetic text creates and getting back to the initial one results in creating cyclic qualities of emotiveness.

The micro emotive units are arranged into a macro emotive image – the constant flow of emotion of the persona.

The aesthetic qualities of this poem lie in its simplicity: the nominative emotive units that are rarely used in poems due to the fact that they are common words and thus devoid of

expressive power are arranged skillfully in the text to show the chain of states the persona undergoes. The absence of details in the text as to emotiogenic situations may generate the multitude of interpretations.

5. Conclusions

The analysis proved the statement that there is a very little distance between the emotion and its verbalization in the poetic text. Nominative emotive units render the ontological capacities of feelings, on the one hand, and demonstrate the aesthetic features that render the beauty of the flow of emotions, on the other.

The empirical study is needed to back up the findings of the paper. It may also prove or disprove the universal features of the interpretation.

Further research is needed to study properties of descriptive and expressive emotive units in rendering ontological features of emotions.

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UNIVERSITIES AND SOCIETY: PROBLEMS OF COOPERATION AND DEVELOPMENT

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Summary

The research relies on the assumption that universities in their activity and development significantly depend on the state and evolutionary stage of society in which they function. Universities respond to the demand of degree-seeking students for educational services that is generated within society. Thus, the state and evolutionary stage of society depend on implemented political and economic institutions. The problem of that sort of dependence emerges full-blown in the countries with hybrid and authoritarian regimes. A hybrid regime of the oligarchical kind has gained a foothold in Ukraine. The vast majority of studies of activities and development of Ukrainian universities are limited to intra-institutional format without critical analysis of the primary causes of these problems, which are rooted in the social context, that is methodologically incorrect. Therefore, the purpose and tasks of the research involve identifying and clarifying the central problems of the cooperation and development of universities and society that are produced by a hybrid regime of the oligarchical type. Nowadays, Ukrainian society doesn't take on the role of the key stakeholder in the advancement of its universities due to economic backwardness, a lack of civilized competitive environment and ample employment opportunities upon the availability of diplomas of higher education ignoring requirements for actual proficiency of their owners. That sort of the state of the Ukrainian society is caused by a lack of the rule of law, monopolization of its political and economic spheres, the use of the state for private benefits, civil society's failure to effectively and successfully secure from the abuses of authorities in their current activity. To overcome the problems restraining the progress of Ukrainian society and its universities, it is necessary to demonopolize the political and economic spheres, disengage business from politics, and create a civilized competitive environment through establishing the rule of law.

Keywords: Ukraine, political regime, higher education, competence, competitiveness, human capital, reforming, civilized competitive environment.

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1. Introduction

Research relevance is driven by the need to optimize the cooperation of universities and society that affects the prospect and progress of their development amidst modern technogenic civilization. The above is explained by the fact that university graduates ensure both scientific-technical progress and socio-economic development as a whole because the diplomas of higher education allow them to get admission to relevant social statuses, including power, in the social hierarchy. The system of social relations, which can either contribute to a country's successful development or hinder or even block this development, depends on

authorities. The problem of that sort of dependence emerges full-blown in the countries with hybrid and authoritarian regimes. Among the twenty-nine countries of the former “Soviet-Socialist bloc”, only ten managed to become transformed into established and semi-established democracies. Other ten formed hybrid regimes, and nine ex-USSR countries kept authoritarianism (*Drachuk, 2020*).

Ukraine represents a hybrid regime of the oligarchical type, which gained a foothold in the nineties of the last century and has blocked its further civilized development. Due to the predominance of such a political regime, Ukraine lags far behind the counties, which have morphed into established democracies, and is progressively sliding into the Third World countries. Lagging disrupts the enhancement of Ukrainian higher education as an integrated factor of its competitiveness. In turn, poor higher education obtained by a wide circle of alumnus hinders social advancement, and thus, the country’s competitiveness. The beforementioned actualizes the study of root causes which give rise to the vicious circle of destructive interaction of universities and society in the countries with hybrid regimes.

The analysis of publications shows that the overwhelming majority of studies of the development of Ukrainian universities is limited to intra-institutional format without critical analysis of primary causes of these problems, which are rooted in the social context. The studies, which are reduced to the subject field of pedagogy when handling the problems of personality development of degree-seeking students, their competitive expertise without concern over the factors of modern Ukrainian society creating these problems, have a specific tendency to disengagement.

The purpose of the research is to identify and clarify the central problems of the cooperation and development of universities and society that are generated by a hybrid regime of the oligarchical type.

Methodology. The research relies on the assumption that universities in their activity and development significantly depend on the state and evolutionary stage of society in which they function. Universities respond to the demand of degree-seeking students for educational services that is generated within society. Thus, the state and evolutionary stage of society depend on implemented political and economic institutions. The author uses philosophical and general scientific research methods, in particular, dialectical method, systems approach, and socio-philosophical analysis.

2. General characteristics of the current state of Ukrainian society

Universities and other higher education institutions dialectically interact with their society, and thus, are directly dependent on its state and development. Amidst the noosphere in the period of the fourth industrial revolution, society and its country are less likely to become competitive and successful in their civilizational progress without sound higher education represented by a wide circle of university graduates. However, there are no logical grounds to hope for the successful growth and competitiveness of universities in a society that falls into decline or lags in development. The mentioned society can’t perform a mission of the key stakeholder in the context of the advancement of its higher education. Until it becomes that sort of stakeholder, there will be no quality of its higher education that would meet modern world requirements. It refers to the entire higher education system, not the top universities which are outnumbered or the best university graduates who are not a majority as well.

Such interdependence – in which a pivotal role belongs to society – is characterized by the poor performance of intra-institutional higher education reforms, which took place in

Ukraine during the last two decades in the context of the Bologna Process. During that period, Ukraine overhauled the higher education system that essentially approximated it to the relevant standards and requirements of the European space of higher education in terms of statutory, structural and even conceptual parameters. Nevertheless, the reforms undertaken didn't result in the improved quality of higher education. A lack of international recognition of Ukrainian diplomas of higher education is an integral indicator of the above.

The low quality of Ukrainian higher education is recognized at the official state level. In particular, S. Kvit, Head of the National Agency for Higher Education Quality Assurance, said the following in that regard: "Dear colleagues! We have to clarify what conditions will make Ukrainian higher education sound and competitive on the international scene. Is it like that now? In other words, are we satisfied with the current state of affairs? If one omits "great strength of great words", we have to admit honestly: no, we are not" (*Kvit, 2019*).

The Draft of Higher Education Development Strategy of Ukraine for 2021-2031 points at the pivotal role of society in the development of universities: "The general problem of the higher education system is that Ukrainian society doesn't generate demand for higher education as an institution and primary resource of domestic development that, along with the massification of higher education, leads to the deformation of the educational process and underperformance of a higher education institution (HEI). ... Limited employment prospects after HEI graduation and sometime low-quality education encourage the most intelligent, talented and ambitious young people to enroll at foreign HEIs. ... A lack of demand for natural and technical education (except for computer sciences) results in the distortion of the number of student and enrollee under subject areas. This is due to weakness and the country's economic focus on raw materials. A small number of high-tech industries does not create sufficient demand and does not guarantee the employment of future professionals. At the same time, there is a gap between staff training structure and demands of a labor market" (*Stratehiia rozvytku vyshchoi osvity..., 2020*).

The major problem is the extensive economy of Ukraine that is maintained through the unreasonable and ineffective use of productive forces on account of the society's well-being and contrary to sustainable development. Audit of the Ukrainian economy until 2030 (n.d), which was a basis for the elaboration and approval of the National Economic Strategy by the Cabinet of Ministers of Ukraine, confirms the mentioned state by referring to the following indicators:

– Nowadays, the real GDP in Ukraine is lower than 30 years ago. In terms of GDP (nominal) per capita, it lags behind Poland, which was not ahead of Ukraine in 1990, by 4.5 times. If the Ukrainian GDP increases like today – by 3% – it will need half a century to achieve Polish GDP per capita. However, the Polish economy is not going to give up – it will keep its progress. Having more substantial resources (human, natural, territorial etc.), Ukraine fell behind the pace of Poland by 50 years over three decades. Upon such an economic growth rate, there is a prospect to pursue with a constant lagging (*Audyt ekonomiky..., n.d.*).

– The Ukrainian economic situation is pulling away from the leaders of the world community; it is progressively sliding into the Third World countries, which serve as row appendage to more productive ones. The level of added value, which raised by 4% in the industry, indicates an unpromising tendency. Indeed, in Latvia, the Czech Republic and Turkey, this indicator increased by 185%, 91% and 248%, respectively (*Audyt ekonomiky..., n.d.: 9*). In the service industry that gained in Ukraine amidst industrial manufacturing collapse, added value has hardly raised and is 1284 USD per employee. Thus, this figure is 12,566 USD in the Czech Republic, 15339 USD – in Poland, and 15823 USD – in Lithuania (*Audyt ekonomiky..., n.d.: 10*).

– “Poor development of the economy led to poor human development and a low living standard for the Ukrainian people (*Audyt ekonomiky...*, n.d.: 12). Since 1991, Ukraine’s population has declined by more than 10 million. It has happened due to the excess of deaths over births and migration. The citizens of Ukraine have better living conditions abroad where they produce much higher added value. “According to conservative estimates, Ukrainians, who have left Ukraine during the years of independence (including their descendants), generate 219 USD billion of gross value added abroad – this is twice as much compared to the gross value added of Ukraine. Following the highest estimates, gross value added produced by the representatives of the Ukrainian diaspora may amount to 1.27 USD trillion that is ten times as high compared to the total gross value added generated annually in Ukraine. The reason for this gap is much higher labor productivity in those countries where Ukrainians emigrate” (*Audyt ekonomiky...*, n.d.: 16). The above is a direct confirmation of the low level of competitiveness of the Ukrainian economy.

High tech industries didn’t become widespread in the economy of Ukraine. “Ukraine is neither mentioned in OECD Country Risk Classification in the context of high-tech industries in the national GDP nor in the Doing Business rankings in terms of high-tech products in the national export. What can illustrate the competitiveness of the national economy more vividly than the above facts?... Nothing else than a low cost of workforce remains, as well as a low cost of natural resources, that benefits not to the country but to moneymakers maintaining the relevant recourses and public servants who allow them to act so. ... In addition to the traditional indicators like production costs per unit of labor and capital inputs, such factors as the number of hi-tech investments, the maturity of science and professional education play a major role in ensuring competitiveness. R&D investments in Ukraine are 0.4 % while, for instance, in Ireland – 4.3 %, in Italy – 3.3 %, in the USA – 2.8 %”.

The backward economy of Ukraine is decisively confirmed by the ranking of the 50 most in-demand jobs in Ukraine dated 01.01.2021 (*Naibilsh zatrebuvani profesii...*, 2021). Professions which don’t require higher educational attainment prevail in the ranking. Only 11 professions require a university degree: 4 medical, 3 police, 2 teacher posts, an accountant and a local government employee. There is no any profession requiring a degree in industrial production, particularly high-tech. Nowadays, the most in-demand jobs in Ukraine are not related to manufacturing but the service sector. However, this sector of the economy can’t make Ukraine, as well as higher education, competitive.

Ukrainian society is socially sick since it is affected by social diseases, which have a system nature and don’t localize if there are no adequate mechanisms for localization, neutralization, blocking, and have become chronic. Corruption, incompetence protection, double moral standards, cultivation of cynical pragmatism etc. have the most destructive effect on its development. In Ukraine, the state as a government institution is under the control of civil servants, who use it for their own benefit. The alienation of authorities from the people disintegrates society, and the abuse of powers for their enrichment multiplies internal social patriotism (*Riabchenko, 2015: 89-161*).

A lack of a civilized competitive environment in Ukrainian society has created unlimited employment opportunities for non-competitive persons in civilized labor markets given the formal availability of a diploma of higher education without regard for their actual expertise. In particular, the above concerns such so-called budget spheres as politics, civil service, law enforcement agencies, fiscal authorities, education, science, health care, etc. These are chiefly those areas of activity that don’t generate added value directly; however, the productivity of society heavily relies on the competence of their actors and their proper performance, from politics to public administration.

3. Central problems of universities' development

It is no surprise that most central problems of Ukrainian higher education are predominantly caused by the problems of modern Ukrainian society, namely:

– The financing of higher education doesn't even meet the approximate level which it needs to become competitive in international competitions. This is confirmed by comparative analysis of its actual financing, not nominal based on a share of GDP, with other countries. Compared to other countries worldwide, Ukraine has the lowest expenses per student – 860 dollars, while Great Britain – 16.9 thousand dollars, German – 14.25 thousand dollars, Poland – 3.1 thousand dollars (*Stratehiia rozvytku...*, 2020).

– The lack of robust competition in our society led to the overwhelming cultivation of incompetence protection, which embraces not only the assistance in employing less competent persons compared to other candidates for a particular post but also unjustified dismissal of persons whose expertise level fits the position held. It is manifested in supporting students who are not capable or don't strive to get a high-quality education, and tolerating academic dishonesty, including falsification of academic outcomes etc.

– Ample opportunities cultivated by employment protectionism according to formal features of the availability of a diploma of higher education, not to objective competence to compete with other candidates on a parity basis, generate a great demand in higher education institutions for a diploma of higher education. The demand comprised the mechanism of academic corruption: a student gets required grades regardless of his academic excellence. The need for diplomas of higher education of those subjects who are not capable to get it independently or are lazy to achieve it creates a proposal that is cheerfully provided by higher education institutions which make profit from incompetence protectionism (*Riabchenko, 2020: 90*).

– It is little surprise that such an earning spread out in the context of the least resource specialties, which need nothing but study books, academic staff and study space. This is evidenced by the statistics available from the Analysis which was discussed at the meeting of the National Security and Defense Council of Ukraine. Thus, in 2019, 57.5 % of the total graduates of universities, academies and institutes represented the least resource-demanding specialties (administration and management – 21.5 %, education /pedagogy – 13.2 %, law – 7.8 %, social and behavioral sciences – 5.4 %, culture and art – 2.7 %, humanities – 2.4 %, public management and administration – 2.1 %, international relations – 1.0 %, journalism – 0.5 % (*Analiz stanu systemy, 2020: 11*).

– Most students obtain a degree in management and administration and public management and administration that is more than forty per cent of the least resource-demanding specialties and almost a quarter of the total. This confirms the aspiration of Ukrainian youth to hold managerial posts in Ukrainian society and unwillingness to make efforts to gain expertise in high-tech specialties. The prevalence of humanities in the context of specialists' training is caused by both fewer expenditures for maintaining academic activities and an easier way – in comparison with natural-technical subject areas – to get a diploma of higher education as a pro forma pass to social ladders in the lack of civilized competition.

– As a result, such a demand for nominal higher education led to the overgrowth of licensed volume for admission of students to the relevant specialties and the increase of domestic higher education institutions, which become called universities, that didn't meet real genuine demands. For instance, there was one university in Kyiv until the 90s, and there are now at least forty HEIs, the names of which contain the word "university". From 1990 to the present, the number of technical secondary schools (tekhnikums) and vocational schools has

decreased from 742 to 338, and the number of students has decreased from 757 to 173.6 thousand – almost by 4.5 times. The maximal reduction of vocational schools happened over the last 15 years. This is primarily associated with a lack of funding for the activities of resource educational institutions that was transferred to the local budgets of the administrative units where they operated. In addition to the above, a strong reason for the mentioned reduction was the supernormal growth of higher education services, which took place between 1995 and 2010 and created easy access for many high school graduates to obtain a higher education diploma. Over the specified period, the number of universities, academies, institutes increased from 149 to 339, and the number of applicants increased from 881.3 to 2372.5 thousand – by 2.7 times. Over the last decade, the number of higher education institutions decreased to 281 and the number of students – to 1256,1 because of demographic crises (*Analiz stanu systemu...*, 2020: 4). Thus, it resulted in the fact that the overall licensed volume of admission to higher education institutions of Ukraine was more than high school graduates. Most higher education institutions faced a lack of competition among applicants that made the formation of a qualified student body impossible. One can't hope for high-quality higher education without a qualified student body.

– A low prestige of a teaching career and the loss of human resources adversely influence the advancement of competitiveness of academic staff. Salaries of the academic staff of Ukrainian HEIs are much lower than in the top countries. In the 2017/2018 academic year, the annual salary of the most skilled personnel – professors – is 7 thousand dollars in Ukraine, while in Great Britain – 116.7 thousand dollars, German – 99.5 thousand dollars; of teachers (lecturers) – 4.7 thousand dollars in Ukraine, while in Great Britain is 54.2 thousand dollars, Germany – 58.8 thousand dollars (*Stratehiia rozvytku...*, 2020: 19).

– A low prestige of academic activity and a steady decline of education financing don't motivate Ukrainian youth to pursue science. From 2010 to 2019, the number of postgraduate students in Ukraine decreased by 19.5% (23 thousand persons), the number of enrolled postgraduate students dropped in 2019 by 22.8% (6780 persons) compared to 2010. The total number of postdoctoral students was reduced by 24.2% (937 persons), enrollees – by 9.7% (435 persons). A low salary level, a lack of social guarantees and opportunities for the realization of personal potential cause an outflow of talented youth from domestic HEIs and scientific establishments (*Stratehiia rozvytku...*, 2020: 20-21).

4. Root causes of cooperation and development of universities and society

The system of social relations and the regime, which keeps this system, chiefly generate Ukrainian society's lagging behind the civilized development and ensuing advancement problems of its universities and other higher education institutions. According to the 2021 annual report "Nations in Transit" of the US human rights organization "Freedom House", a hybrid regime of the oligarchical type prevails in Ukraine (*Drachuk, 2019*). This explains its backwardness in socio-economic progress compared to Poland and the Baltic region, which became the rule-of-law states through introducing inclusive political and economic institutions in their societies. In Ukraine, there was the transformation of extractive institutions of the Soviet regime into the extractive institutions of the oligarchical type.

Having embarked on such a path of socio-economic transformation, Ukraine was trapped in a vicious circle that is progressively leading it in deterioration, not in progress in its civilizational development. That is likely to remain in effect as long as Ukraine breaks free of this circle. D. Acemoglu and D. Robinson explain that a vicious circle is formed by extractive political

and economic institutions while inclusive institutions shape an integrity circle that contributes to successful civilized development and the nation's prosperity.

First, the above is proved by the mentioned grim statistics that visualizes the devastating stagnation of Ukraine in the world competitions of civilized development. Second, it illustrates the iron law of oligarchy, the relentless effect of which is the decline of nations; D. Acemoglu and D. Robinson interpret it as follows: "An iron law of oligarchy, a particular image of a vicious circle, means that new leaders overthrowing old ones with promises of radical change bring nothing but more of the same" (*Acemoglu, Robinson, 2019: 315*). By referring to the German sociologists R. Michels who defined the relevant law, they explain, "The internal logic of oligarchies, and in fact of all hierarchical organizations, is that, argued Michels, they will reproduce themselves not only when the same group is in power, but even when an entirely group takes control" (*Acemoglu, Robinson, 2019: 314*).

The following warning is extremely relevant to Ukraine: "If extractive institutions create great inequality in society, provide leaders with vast fortune and limitless power, there will be many persons interested in fighting for the seizure of control over the state and institutions. Moreover, extractive institutions not only break the way for the succeeding regime, that is more extractive, but also give rise to constant struggle and civil wars. Indeed, the latter cause more severe human sufferings and destroy everything a weak state centralization of countries achieved. This often results in slipping into unlawful acts, state destruction and political chaos shattering all hopes for economic prosperity..." (*Acemoglu, Robinson, 2019: 320*).

The mentioned tendency is confirmed by the two revolutions of 2004 and 2014 when one group of authorities was deprived of control over the state that was granted to others using the Ukrainian people, who were about to lose confidence in incumbent authorities. However, the status quo of the hybrid regime, which uses the state as its property, has remained unaltered up to the present day. Ukraine doesn't have a powerful civil society which would control the government after conducted revolutions and secure from abuses of its actors in power. Uncontrollability, unaccountability and irresponsibility of authorities are a source of systemic corruption, which blocks the productive development of society, demoralizes it and multiplies social parasitism.

The weakness of civil society in Ukraine is driven by a lack of the strong working class and socio-economic dependence of most people on the state and authorities which control it. This sort of dependence encompasses sources of financial support of citizens of Ukraine. For most folks, a salary or pension is the only source. The reasons for such dependence are monopolization of the political and economic realms of Ukrainian society, a lack of the rule of law and a civilized competitive environment. The above hinders development and productive implementation of human capital.

5. Proposals for overcoming problems of the development of Ukrainian society and its universities

Overcoming problems of the development of modern Ukrainian society should start with eliminating root causes, which trigger them, and continue with a cause-and-effect chain, as follows:

- To introduce inclusive political and economic institutions through demonopolizing the political and economic spheres of Ukrainian society and disengaging business from politics.
- To establish the rule of law, the characteristic criterion of which is equality of all citizens regardless of their status before the law.

- To shape a civilized competitive environment within society that would include the mechanisms of positive social selection.
- The mechanisms of positive social selection through civilized competition must contribute to society's self-purification from corruption and other types of social parasitism, and thus, its recovery.
- A civilized competitive environment will create opportunities for a strong middle class, which will require the use of competitive production technologies for its development, entailing adequate expertise for their maintenance.
- Pro forma diplomas of higher education amidst a civilized competitive environment will lose their social importance, which they currently have in terms of a relevant post held in a social hierarchy.
- The demand for competitive competence becomes topical among the citizens of Ukraine; exclusively competitive higher education institutions can guarantee its satisfaction.
- The demand for competitive competence results in optimizing domestic HEIs through positive selection, not through administrative way, like now, that is implicitly associated with corruption risks and unjust decisions.
- The net result is that the model of optimal cooperation and development of Ukrainian society and its higher education institutions will function productively.
- To accelerate such a necessary transformation of modern Ukrainian and its productive cooperation of universities and other higher education institutions, ones must carry out positive changes of domestic higher education of the intra-institutional nature:
 - It is essential to keep reforming the entire domestic system of higher education, approximating it to standards and requirements of the European space of higher education in the statutory-procedural, structural and informative context.
 - To ensure the financial autonomy of domestic HEIs.
 - To create an effective model of forecasting qualifications in the labor market. To introduce a system for monitoring workforce demand and proposals in the labor market.
 - To improve the system of the competitive entrance to HEI to select motivated persons who are capable of obtaining higher education.
 - Ukrainian higher education institutions must become the centers and hubs of universal human values. Such a task suits students motivated to gain competitive expertise, rectors and their teams, who don't rely on the values of survival tactics but follow the development strategy of their academic environment that would compete with West European universities in terms of opportunities for specialists' training.
 - To implement the system of electronic monitoring, which is a basis of the ranking of domestic universities upon the criteria of alumni's employment and career progress.
 - To introduce the mechanisms of effective governance in managing higher education institutions which must democratize their social environment that should liberate the initiative of the subjects of their activity, increase personal responsibility for progress made and promote the development of personal potential.

6. Conclusions

In the period of the fourth industrial revolution, the country cannot become competitive without sound higher education since their progress is interdependent. However, despite the importance of higher education in this dialectical cooperation, it cannot independently make the country competitive given that its economy and society are on the wane or hopelessly lag

in its development compared to the leaders of the world community. Thus, the non-competitive country cannot have competitive higher education.

A basis of society and key to its advancement is the economy that cannot be competitive in those industries which are not available in its structure or are not technologized and developed contemporarily. There is no reason to accuse higher education of not training competitive specialists in high-tech industries, which the domestic economy lacks. The competitiveness of higher education is supported by its competitive financing.

Higher education, as a social institution, responds to students' demand for educational services that is generated within society. If the student community is not capable or is not motivated to gain expertise meeting modern world requirements, then one should not hope for competitive higher education in such a society. Unlimited employment opportunities in society upon the availability of diplomas ignoring competitive expertise of their owners motivate the general public to obtain poor education.

The quality of higher education primarily depends on the expertise of academic staff, students, educational programs and material support of educational and scientific activities. However, the importance of all factors is neutralized without capable and motivated students to obtain competence competitive in the civilized markets. Thus, the actualization of student personality to obtain competitive knowledge is a determinant for the development of a higher education institution. It is impossible to form a qualitative student body without entrance competition.

Ukraine is in urgent need of competitive specialists and a genuine national elite, which relies on the democratic values and statism worldview, in order to become a competitive and prosperous country – in terms of public well-being – and equal among best countries of the world community. Education is a fundamental component or a groundwork of human capital. The more qualitative education is, the higher level of the competitiveness of human capital is.

Nowadays, Ukrainian society doesn't fulfill the role of the key stakeholder in the development of its universities due to economic backwardness, a lack of civilized competitive environment and ample employment opportunities if there are pro forma diplomas of higher education without the requirements for actual competence of their owners. The mentioned state of Ukrainian society is caused by the lack of the rule of law, monopolization of its political and economic areas, use of the state for private interests, civil society's failure to effectively and successfully secure from the abuses of authorities in their current activities.

To overcome the problems which hinder the advancement of Ukrainian society and its universities, it is essential to demonopolize the political and economic areas, disengage business from politics, and form a civilized competitive environment through establishing the rule of law.

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**CHANGE PECULIARITIES OF THE FUNCTIONAL STATE
OF THE CARDIORESPIRATORY SYSTEM OF FOOTBALL PLAYERS
AT THE AGE OF 15-17 UNDER THE INFLUENCE OF THE EXPERIMENTAL
PROGRAM OF ANNUAL MICROCYCLE TRAINING SESSION**

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Summary

The optimal form of organization of the training process, taking into account current trends in football, can ensure the achievement of the appropriate level of training of players and high sports results. *Objective:* to evaluate the effectiveness of the experimental program of the training process of football players aged 15-17 in the preparatory period of the annual macrocycle to improve their functional preparedness in preparation for the competitive season. *Material and methods of the study:* the study involved 29 football players aged 15-17 years, who are engaged in this type of sports games at the stage of specialized basic training. *Results:* it is shown that the use of the traditional program for the preparatory period of the annual training cycle in the training process did not significantly improve the level of their overall functional preparedness, namely: by the end of the training season they showed a significant improvement only in heart rate (by 9%), hypoxia index (by 13%) and the cardio-vascular system functional state level (9%). Changes in other indicators were not statistically significant and ranged from only 2% to 10%. On the contrary, the introduction in the preparatory period of the annual macrocycle of the proposed program to build the training process of football players aged 15-17 contributed to significant positive changes in their overall functional preparedness: by the end of the study the experimental group had significant positive changes by 8-70% compared to the original data. It should be noted that at the end of the preparatory period for the players of the experimental group were characterized by significantly higher than in the control group, the rate of reduction of functional stress (by 15-20%), increased adaptive capacity (by 50%), their body's resistance to hypoxia (by 15%), as well as increasing the cardio-vascular system functional state level by 5%, and the external breathing system functional state level by 18%. *Conclusions:* the obtained results testified to the high efficiency of the experimental program of building the training process of football players aged 15-17 in the preparatory period of the annual macrocycle.

Keywords: functional state, cardiorespiratory system, preparatory period, football players aged 15-17, training process, experimental program.

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1. Introduction

The problem of optimizing the functional preparedness of football players on the different stages of long-term sports training still remains one of the most relevant in the field of sports excellence (*Bujalance-Moreno, Latorre-Román, García-Pinillos, 2019: 927; Turna, Alp, 2020: 168*).

This is due to the significant role of the functional preparedness of athletes in ensuring the optimal implementation of other types of general training, including physical and technical-tactical preparedness, directly in the process of competitive activity.

According to most experts, the optimal level of functional preparedness of athletes, in turn, requires an appropriate level of functional state of the leading physiological systems of the body, especially the cardiovascular system and the respiratory system (*Dyachenko A., 2000: 48; Mizchenko V., Tomyak T., Dyachenko A. 2003: 60; Malikov et al, 2020: 2688; 2021: 379*).

In connection with the above study of the functional state of football players on the different stages of sports training, in particular at the initial stages, is devoted to a large number of scientific studies (*Lisenchuk, Tishchenko, 2019: 179; Strykalenko, Shalar, Husar, Boychenko, 2020: 94; Barba, Iturriaga, Borges-Fernandes, 2020: 1785; Menegassi et al, 2018: 171*).

However, it should be noted that the current level of development of high-achievement sports, including football, the growing demands on the general condition of players, their physical and functional preparedness, requires the search for new innovative approaches to building the training process, especially in preparation for the competitive season.

Obviously, only the optimal form of organization of the training process, taking into account current trends in football, can ensure the achievement of the appropriate level of training of players and high sports results. According to most experts, an important criterion for evaluating the effectiveness of new experimental programs to build a training process can be the functional state of the cardiorespiratory system of their body.

The relevance and undoubted practical significance of this problem became the prerequisites for this study.

Connection of research with scientific programs, plans, topics. The work was performed within the state budget theme "Modern technologies for training athletes of different specializations and qualifications in Olympic sports" (state registration number – 0116U004848) Thematic plan of research work of Zaporozhzhian National University for 2016-2020.

The purpose of the study: to evaluate the effectiveness of the experimental program of the training process of football players aged 15-17 in the preparatory period of the annual macrocycle to improve their functional preparedness in preparation for the competitive season.

Material and research methods. The study involved 29 football players aged 15-17, who are engaged in this sport at the stage of specialized basic training. All players were divided into control (14 athletes) and experimental (15 athletes) groups.

The football players of the control group were engaged in the traditional program in football (*Nikolaenko, Avramenko, Goncharenko, 2003*), and the athletes of the experimental group according to the experimental training program developed by us.

Organization of the study. The evaluation of the effectiveness of the experimental program of the training process was carried out on the basis of a comparative analysis of changes in the circulatory and external respiration of football players of the control and experimental groups within the preparatory period of the annual macrocycle.

The main features of the experimental program were the redistribution of training loads of different orientations, namely: within the general-preparatory and special-preparatory stages it was proposed to increase the amount of training loads by 6 hours to increase the level of special physical preparedness by reducing the corresponding amount by 2 hours to general physical, technical and tactical training; in the first half before the competitive stage it was proposed to increase the amount of training sessions on special physical training by 4 hours by reducing the amount of general physical and tactical training by 2 hours, and in the second half of this stage it was planned to increase the amount of special physical training by 4 hours reduction by 2 hours of technical and tactical training.

In addition, as part of the general preparatory stage, it was proposed in the 1st, 2nd and 3rd microcycles to increase by 5% the amount of training loads for the development of speed and strength and speed endurance by reducing in each of these microcycles by 10 % of the amount of funds aimed at developing overall endurance.

In all of four microcycles of the special-preparatory stage it was proposed to increase by 5% the amount of training loads of speed-power orientation due to the corresponding reduction of training loads aimed at the development of general endurance.

As part of the pre-competition stage, it was proposed to increase by 5% the amount of training loads aimed at the development of speed and strength abilities in the 1st, 2nd, 3rd, 7th and 8th microcycles and to reduce by 5% in 4- th and 5th microcycles. The load on the development of speed abilities was proposed to be reduced by 5% in the 3rd, 7th and 8th microcycles, but to increase in the 4th and 5th microcycles. It was proposed to reduce the amount of training loads aimed at increasing the overall endurance of athletes in the 1st and 2nd microcycles.

Testing was performed at the beginning (December) and at the end (March) of the preparatory period of the annual macrocycle.

Methods of variational and amplitude pulsometry, spirometry and the computer program "SHVSM-integral" were used to assess the functional state of the cardiovascular system and the external respiratory system (*Malikov, Bogdanovskaya, Svatyev, 2006*). The algorithm of inspection within the limits of this program provided definition by means of standard methods of such indicators as heart rate (HR, $\text{beats} \cdot \text{min}^{-1}$), systolic (APs, mm of mercury), diastolic (APd, mm of mercury) blood pressure, vital lung capacity (VLC, ml), inhalation breathing delay time (T_{in} , sec), exhalation breathing delay time (T_{ex} , sec) and after entering the data into the program automatic calculation of systolic (SBV, ml) and minute (HBV, $\text{l} \cdot \text{min}^{-1}$) blood volumes, heart index (HI, $\text{l} \cdot \text{min}^{-1} \cdot \text{m}^{-2}$), general peripheral resistance (GPR, $\text{din} \cdot \text{s} \cdot \text{cm}^{-5}$), hypoxia index (HI, conventional units) and Skibinski (SI, conditional units) and the level of functional state of the cardiovascular system (LFScvs, points) and the external breathing system (LFSebs, points).

Statistical processing of the study results was performed using standard software packages "STATISTIKA 7.0" and EXEL with the calculation of the following indicators: arithmetic mean (\bar{X}), standard deviation (δ) and the arithmetic mean error (S).

2. Research results and their discussion

The results of the initial testing of the functional state of the cardiorespiratory system of football players of both groups allowed to state the following.

At the beginning of the experiment (beginning of the preparatory period) for the players of the control and experimental groups were characterized by almost identical indicators of the cardiovascular and respiratory systems of their body (Table 1).

Table 1

Indicators of the functional state of the cardiorespiratory system of football players of the control and experimental groups at the beginning of the study, $x \pm S$

Indicators	Control group (n=14)	Experimental group (n=15)
Cardiovascular stress index, cond. units	231,11±12,67	225,98±11,95
Vegetative balance index, cond. units	236,65±8,79	231,27±7,96
Heart rate indicator, cond. units	73,42±2,50	75,20±1,76
Adaptive potential of the cardiovascular system, cond. units	0,33±0,03	0,35±0,03
Systole blood volume, ml	64,70±1,23	66,19±0,65
Minute blood volume, L/min	3,88±0,07	3,97±0,04
Cardiac index, L/min/m ²	2,89±0,07	2,99±0,11
General peripheral resistance, $\text{din}^2 \times \text{sec} / \text{sm}^5$	1368,8±37,01	1306,93±35,34
Cardio-vascular system functional state level, points	70,74±2,19	73,16±2,26
Vital lung capacity, ml	2520±78,24	2640±54,16
Inhalation breathing delay time, sec.	73,9±2,04	75,7±1,94
Exhalation breathing delay time, sec.	32,7±1,16	35,2±1,97
Hypoxia index, cond. units	0,48±0,02	0,54±0,04
Skibinsky index, cond. units	2768,47±137,65	3049,85±125,38
External breathing system functional state level, points	69,21±0,80	71,41±1,16

Among athletes of both groups there were close to each other values of systolic blood volume (SBV) (64,70±1,23 ml in the control group and 66,19±0,65 ml in the experimental group), minute blood volume (MBV) (3,88±0,07 L/min and 3,97±0,04 L/min), cardiac index (CI) (2,89±0,07 L/min/m² and 2,99±0,11 L/min/m²) and general peripheral resistance (GPR) (1368,8±37,01 $\text{din}^2 \times \text{sec} / \text{sm}^5$ and 1306,93±35,34 $\text{din}^2 \times \text{sec} / \text{sm}^5$).

It should be noted that at this stage of the study, all players had a fairly high level of functional stress mechanisms of heart rate regulation (the values of cardiovascular stress index (CVSI) were respectively 231,11±12,67 c.u. and 225,98±11,95 c.u., and the vegetative balance index (VBI) – 236,65±8,79 c.u. and 231,27±7,96 c.u.), below the average value of the heart rate indicator (HRI) (respectively 73,42±2,50 c.u. and 75,20±1,76 c.u.) and low – adaptive potential of the cardiovascular system (APcvs) (0,33±0,03 c.u. and 0,35±0,03 c.u.). However, for players of both groups was characterized by a higher than average level of functional state of the cardiovascular system (LFScvs) (respectively 70,74±2,19 points and 73,16±2,26 points).

The presented data showed that a fairly high level of functional state of the cardiovascular system is provided by a high degree of realization of the functional reserve of the body of football players, which can not be considered as an adequate form of adaptation to regular exercise.

To some extent, this conclusion was confirmed by the results of a comparative analysis of the indicators of the external breathing system of football players aged 15-17 of the control and experimental groups.

At the beginning of the experiment for athletes of both groups was characterized by a higher than average level of functional state of the external breathing system (LFSesbs) – 69,21±0,80 points in the control group and 71,41±1,16 points.

However, almost identical, reduced values of such integrated indicators as vital lung capacity (VLC), inhalation breathing delay time (T_{in}), hypoxia (HI) and Skibinski's (SI)

indexes indicated that the increased level of functional state of the external breathing system (LFSebs) of football players of both groups is provided by significant mobilization of their body's functional reserve.

In general, the results obtained at the beginning of the experiment showed the relative homogeneity of the players of the control and experimental groups, which is important for further objective interpretation of the study materials.

The next testing of football players of both groups was conducted by us at the end of the preparatory period of the annual macrocycle.

Analysis of changes in the indicators of the cardiorespiratory system in the players of the control group allowed to establish the following (Table 2).

Table 2

Indicators of the functional state of the cardiorespiratory system of control group players at the beginning and end of the study, $\bar{x}\pm S$

Indicators	The beginning of the experiment	The end of the experiment
Cardiovascular stress index, cond. units	231,11±12,67	208,41±11,43
Vegetative balance index, cond. units	236,65±8,79	218,31±8,11
Heart rate indicator, cond. units	73,42±2,50	79,93±2,73*
Adaptive potential of the cardiovascular system, cond. units	0,33±0,03	0,40±0,04
Systole blood volume, ml	64,70±1,23	67,53±1,28
Minute blood volume, L/min	3,87±0,05	3,88±0,07
Cardiac index, L/min/m ²	2,89±0,07	2,80±0,07
General peripheral resistance, $\text{din}^2 \times \text{sec} / \text{sm}^5$	1368,8±37,01	1264,91±34,2
Cardio-vascular system functional state level, points	70,74±2,19	76,93±2,38*
Vital lung capacity, ml	2520±78,24	2575±71,98
Inhalation breathing delay time, sec.	73,9±2,04	77,6±1,86
Exhalation breathing delay time, sec.	32,7±1,16	35,9±1,36
Hypoxia index, cond. units	0,48±0,02	0,55±0,03*
Skibinsky index, cond. units	2768,47±137,65	3064,22±144,83
External breathing system functional state level, points	69,21±0,80	71,23±0,84

Note: * – $p < 0.05$ compared to the beginning of the experiment.

Prior to the end of the experiment, they were characterized by a positive tendency to reduce the degree of functional stress of the regulatory mechanisms of the cardiovascular system, as evidenced by a decrease in CVSI and VBI, as well as a tendency to increase integrated indicators such as systolic and minute blood volumes, adaptive potential, vital lung capacity, inhalation and exhalation breathing delay time, Skibinsky index. At the same time, only positive changes in heart rate indicator (HRI) (up to 79,93±2,73 c.u.), hypoxia index (up to 0,5±0,03 c.u.) and cardio-vascular system functional state level (up to 76,93±2,38 points) were statistically significant. Based on the obtained data, it could be said that the use of the traditional training program in the training process did not fully optimize the functional state of the cardiorespiratory system of the control team until the end of the preparatory period of the annual training cycle.

On the contrary, the football players of 15-17 years of the experimental group to the end of experiment showed a significant improvement in all indicators of the functional state of the cardiorespiratory system of their body (Table 3).

Table 3

Indicators of the functional state of the cardiorespiratory system of the experimental group players at the beginning and end of the study, $x \pm S$

Indicators	The beginning of the experiment	The end of the experiment
Cardiovascular stress index, cond. units	225,98±11,95	158,8±9,56***
Vegetative balance index, cond. units	231,27±7,96	178,82±6,5***
Heart rate indicator, cond. units	75,2±1,76	88,43±4,26**
Adaptive potential of the cardiovascular system, cond. units	0,35±0,03	0,59±0,07**
Systole blood volume, ml	66,19±0,65	69,42±1,43*
Minute blood volume, L/min	3,97±0,04	4,17±0,09*
Cardiac index, L/min/m ²	2,99±0,11	2,56±0,03***
General peripheral resistance, $\text{din}^2 \times \text{sec} / \text{sm}^5$	1306,93±35,34	1196,68±32,3*
Cardio-vascular system functional state level, points	73,16±2,26	83,53±1,8**
Vital lung capacity, ml	2640±54,16	2845±46,22**
Inhalation breathing delay time, sec.	75,7±1,94	82,3±1,43**
Exhalation breathing delay time, sec.	35,2±1,97	42,5±1,44**
Hypoxia index, cond. units	0,54±0,04	0,69±0,03**
Skibinsky index, cond. units	3049,85±125,38	3807,76±110,8***
External breathing system functional state level, points	71,41±1,16	86,55±1,4***

Note: * – $p < 0,05$; ** – $p < 0,01$; *** – $p < 0,001$ compared to the beginning of the experiment.

By the end of the study, they had a significant decrease in the values of CVSI and VBI (respectively 158,8±9.56 c.u. and 178,82±6,5 c.u.), general peripheral resistance (up to 1196,68±32,3 $\text{din}^2 \times \text{sec} / \text{sm}^5$) and, conversely, a significant increase in the values of HRI (up to 88,43±4,26 c.u.), APcvs (up to 0,59±0,07 c.u.), SBV and MBV (respectively 69,42±1,43 ml and 4,17±0,09 L/min), vital lung capacity (up to 2845,00±46,22 ml), inhalation and exhalation breathing delay time (according to 82,3±1,43 sec and 42,5±1,44 sec), hypoxia and Skibinski indexes (up to 0,69±0,03 c.u. and 3807,76±110,8 c.u.), cardio-vascular system functional state level and external breathing system functional state level (respectively 83,53±1,8 points and 86,55±1,4 points), which were already considered high.

This was confirmed by the results of the comparative analysis presented in table 4.

After the experiment for the experimental group were characterized by significantly lower, than in the control group, the values of the cardiovascular stress index (respectively 158,8± 9,56 c.u. and 208,41±11,43 c.u.), vegetative balance index (178,82±6,5 c.u. and 218,31±8,11 c.u.) and higher values of the adaptive potential of the cardiovascular system (0,59±0,07 c.u. and 0,4±0,04 c.u.), minute blood volume (4,17±0, 09 L/min and 3,88±0,07 L/min), vital lung capacity (2845,00±46,22 ml and 2575,00±71,98 ml), the inhalation breathing delay time (82,3±1,43 sec and 77,6±1,86 sec) and exhalation breathing delay time (42,5±1,44 sec and 35,9±1,36 sec), hypoxia index (0,69±0,03 c.u. and 0,55±0,03 c.u.) and Skibinski index (3807,76±110,8 c.u. and 3064,22±144,83 c.u.), cardio-vascular system functional state level (83,53±1,8 points and 76,93±2,38 points) and external breathing system functional state level (86,55±1,4 points and 71,23±0,84 points).

The presented data convincingly testified to the pronounced positive impact of the training program developed by us on the general level of functional preparedness of football players aged 15-17, who train at the stage of specialized basic training.

Table 4

Indicators of the functional state of the cardiorespiratory system of the control and experimental groups players at the end of the study, $\bar{x} \pm S$

Indicators	Control group (n=14)	Experimental group (n=15)
Cardiovascular stress index, cond. units	208,41±11,43	158,8±9,56***
Vegetative balance index, cond. units	218,31±8,11	178,82±6,5***
Heart rate indicator, cond. units	79,93±2,73	88,43±4,26**
Adaptive potential of the cardiovascular system, cond. units	0,40±0,04	0,59±0,07**
Systole blood volume, ml	67,53±1,28	69,42±1,43
Minute blood volume, L/min	3,88±0,07	4,17±0,09*
Cardiac index, L/min/m ²	2,80±0,07	2,56±0,03**
General peripheral resistance, $\text{din}^2 \times \text{sec} / \text{sm}^5$	1264,91±34,2	1196,68±32,3
Cardio-vascular system functional state level, points	76,93±2,38	83,53±1,8**
Vital lung capacity, ml	2575±71,98	2845±46,22**
Inhalation breathing delay time, sec.	77,6±1,86	82,3±1,43*
Exhalation breathing delay time, sec.	35,9±1,36	42,5±1,44**
Hypoxia index, cond. units	0,55±0,03	0,69±0,03**
Skibinsky index, cond. units	3064,22±144,83	3807,76±110,8***
External breathing system functional state level, points	71,23±0,84	86,55±1,4***

Note: * – $p < 0,05$; ** – $p < 0,01$; *** – $p < 0,001$ in comparison with the control group.

Table 5

Values of relative changes in the indicators of the cardiorespiratory system of football players aged 15-17 of the control and experimental groups after the experiment (in% to baseline values)

Indicators	Control group (n=14)	Experimental group (n=15)
Cardiovascular stress index, cond. units	-9,82±1,35	-29,73±1,28***
Vegetative balance index, cond. units	-7,75±1,36	-22,68±1,29***
Heart rate indicator, cond. units	8,87±1,48	17,6±2,61**
Adaptive potential of the cardiovascular system, cond. units	20,73±1,57	70,58±2,35***
Systole blood volume, ml	4,37±1,45	4,89±2,41
Minute blood volume, L/min	0±1,41	4,89±2,41
Cardiac index, L/min/m ²	-3,11±1,39	-14,33±1,05***
General peripheral resistance, $\text{din}^2 \times \text{sec} / \text{sm}^5$	-7,59±1,36	-8,44±1,36
Cardio-vascular system functional state level, points	8,75±1,48	14,18±1,28**
Vital lung capacity, ml	2,18±1,36	7,77±1,31**
Inhalation breathing delay time, sec.	5,01±1,35	8,72±1,24*
Exhalation breathing delay time, sec.	9,79±1,55	20,74±1,24***
Hypoxia index, cond. units	13,54±1,71	28,26±1,22***
Skibinsky index, cond. units	10,68±1,45	24,85±1,33***
External breathing system functional state level, points	2,91±1,45	21,2±1,57***

Note: * – $p < 0,05$; ** – $p < 0,01$; *** – $p < 0,001$ in comparison with the control group.

The results of the comparative analysis of the values of the relative changes in the indicators of the cardiorespiratory system of the players of the control and experimental groups before the end of the study were quite indicative (Table 5).

They were characterized by significantly higher, compared with the control group, the rate of reduction of the degree of functional stress of the regulatory mechanisms of the cardiovascular system (3 times), increasing its adaptive capacity (3,5 times), all indicators of the external breathing system (2-3 times)), as well as the cardio-vascular system functional state level (2 times) and the External breathing system functional state level (10 times).

3. Conclusions

Based on the analysis of the problem of optimizing the functional state of the cardiorespiratory system of football players at the stage of specialized basic training, the need for further improvement of training programs in the preparatory period of the annual macrocycle is shown due to lack of significant positive changes in cardiovascular system and external breathing system of young football players the influence of the traditional program of training sessions, which coincides with the data of researches of other authors.

It should be noted that for the first time, integrated indicators of the levels of the functional state of the cardiovascular system and the external breathing system were used to determine and assess the current level of the functional state of the cardiorespiratory system of football players. These indicators are one of the integral criteria for assessing and forecasting the level of functional preparedness of athletes and the effectiveness of the training process.

The presented results testified to the pronounced optimization of the level of functional preparedness of the experimental group players at the end of the preparatory period of the annual macrocycle and confirmed the high efficiency of our proposed program to build the training process of football players 15-17 year at the stage of specialized basic training.

Prospects for further research in this area are to further study the dynamics of the functional state of the cardiorespiratory system of young football players under the influence of new programs training process.

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INTERACTIVE METHODS AS MEANS OF ENSURING CONTINUOUS PROFESSIONAL DEVELOPMENT

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Summary

The present paper aims at discussing the role of interactive methods in modern approach towards continuous professional development of medical students. Inner and outer reasons for switching from a traditional model of education to an innovative one caused popularity of blended education among teachers. Pandemic situation as well as change of education focus from simple acquiring knowledge to getting real life and professional competencies prompt teachers to use new approaches to realization of their students' potential. We consider interactive methods to be the most effective and valuable for the modern specialist education due to their potential in terms of accessibility and engagement. To succeed in achieving aims of modern education teachers should ensure that methods they choose are activity and personality-oriented, systematic and complex, synergetic and competence-oriented. The research highlights merits of interactive approach and suggests possible ways of usage on the example of a topic from the course of Internal Diseases for medical students.

Keywords: blended education, interaction, participatory learning, cooperative learning, hands-on/real life and professional competencies

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1. Introduction

The rapid development of information and communications technologies, their significant potential in almost every sphere of life of mankind have changed the learning processes considerably for all segments of the population. Starting from a school desk, people today cannot imagine themselves without the Internet. The latter has probably become another dimension of human existence. This quick introduction of modern technologies in the educational process contributes to the development of new perspectives in the continuous professional development of a specialist in any profession. Given the present-day conditions of higher education institutions in 2021 (long-term quarantine related to COVID-19), there should be changes in traditional approaches to the provision of educational services, their improvement and modernization. Therefore, the modern educational process is being organically transformed into a mixed or blended model of learning. Blended learning means a purposeful process of acquiring knowledge, skills and abilities carried out by educational institutions of various types within the framework of formal education, part of which is implemented remotely using information and communication technologies and teaching aids used for storing and delivering educational material, implementation of control measures, organization of interaction between participants (Bugajchuk, 2016).

2. Main Principles of Blended Learning

We understand that the focal points of blended learning are the student and the teacher, and this process aims to create effective interaction of students within the frames of "student-content", "student-teacher" and "student-student". However, if in the traditional learning process all types of interaction are organized by the teacher in the process of live communication, and any deviations are regulated by direct contact, in e-learning students are mostly left alone with the content of the course. Indirect and asynchronous nature of the interaction, lack of live communication and of verbal (intonation, tone of voice) and nonverbal (facial expressions, gestures) means of communication lead to an urge to form new mechanisms of teacher influence on the educational process to ensure the quality of learning. The emphasis in ensuring the effectiveness of e-learning is transferred to a specially organized by the teacher learning environment – e-learning course, in the development of which it is necessary to simulate real learning conditions – to provide conditions for all types of learning interaction, as well as the effect of constant teacher presence.

So the role of the teacher:

– to ensure the principle of trust in communication. To achieve this objective a teacher may use a special organization of group space during classes: usually, students and teacher are placed in a circle facing each other, to change students' stereotypes and ideas about how classes should be conducted and organized and which role the teacher should play.

– to ensure the principle of equality. It means that the teacher does not try to impose his thoughts on the students, but acts together with them. In turn, each student has the opportunity to play the role of organizer and leader.

Our society requires not only highly qualified workers but also those who can think independently, critically and creatively, being responsible, mobile, competitive and professionally competent, capable of self-development and self-realization. Increasingly, employers are demanding that their employees have not only professional skills but also certain personal characteristics and qualities.

Thus, for more and more people, higher education today becomes not just a means of professional training in various fields, but a mandatory stage of personal development, which is a hallmark of our time. Analysis of recent publications and researches of scientists, as well as opinions of university professors, students and employers allowed to develop a model of the personality of a specialist with higher education with relevant characteristics, knowledge and competence:

- High-quality training of a certain profession within the model of general higher education development.
- Striving for constant updating of knowledge and new skills in the field of professional interests, conviction in the need for continuous training and improvement.
- Ability to self-assess objectively, self-develop, the need for achievement and independent decision-making, flexibility and confidence in the application of knowledge in non-standard conditions.
- Timely adaptation to rapidly changing living and professional conditions.
- High social activity in all spheres of life, competitiveness in social and economic activities.
- Availability of knowledge and skills in the field of modern information technologies, namely: obtaining information from various sources, its critical interpretation, systematization, preservation, analysis and creative use.

- Proficiency in several foreign languages at the level of communication and performance in any audience.
- Ability to work effectively in a group, tolerance and emotional balance.
- Formation of universal and national values.
- Skills to present the result in different forms and types.

Requirements for professionalism and personality of the specialist have prompted to seek new paradigms for reforming education, its new models and technologies, innovative approaches, forms and methods of teaching (*Pometun, Pyrozhenko, 2004*).

3. Interactive Methods in Blended Learning

Among the learning models are: traditional or classical, active and interactive. The peculiarities of the traditional (classical) model are that students learn from the teacher (traditional lectures) or from the textbook, do not participate in the discussion, and in practical classes are interviewed on the theoretical lesson plan and students demonstrate only reproductive knowledge. The peculiarities of the active model involve the stimulation of cognitive activity and independence of students, interaction in the system of student-teacher, as well as the presence of creative tasks.

This method includes: debates, open microphone, information search, implementation of individual creative projects, quizzes, crossword puzzles, others. Unlike active methods, interactive methods are focused on the wider interaction of students not only with the teacher, but also with each other, with the emphasis on the dominance of student's participation in the learning process. The role of the teacher in interactive classes is to direct students to achieve the goals of the lesson.

Interactive learning is a specific form of organization of cognitive activity, which has a predictable goal – to create a comfortable learning environment in which each student feels personal success and intellectual ability (*Pometun, Pyrozhenko, 2004*). The word "interactive" from inter (from Latin among, between, betwixt, in the midst of) and act (from Latin "do, perform") means to be able to interact, to hold a dialogue. The basis of this technique is organized creative cooperation of equal individuals. All students and teachers actively interact with each other, analyze their own actions and the actions of other participants in the learning process, and subsequently change their behavior.

The student and the teacher are equal participants of the learning process. The approach to the student, which is at the center of the learning process, is based on respect for his opinion, on the motivation for activity, on the encouragement of creativity. It consists primarily of increasing the educational efficiency of classes, of a significant increase in the level of implementation of the principles of consciousness, activity and quality of knowledge, skills and abilities acquired by students. This new approach is called "participatory learning", "cooperative learning", which provides an opportunity to comprehensively discuss each problem, prove and justify their views on how to solve it.

This contributes not only to a deeper understanding of the educational material, but also to the development of thinking and speaking. The teacher during the interactive learning acts as an organizer of the learning process, a consultant. That is, the teaching process becomes a process of learning first of all controlled by the teacher and by students (*Gusak, 2019*).

Interactive learning has many advantages over a traditional mode. Researchers have found that no more than 20% of information is assimilated during a lecture, while 75% is learned in a discussion process and about 90% in a reproduction mode. Scientists and practitioners have

proven and widely recognized that interactive learning is an effective method of stimulating interest in learning and motivation of educational and cognitive activities and promotes:

- mastering different stages of educational activities;
- critical thinking development;
- growth of self-confidence;
- development of independence;
- the formation of a positive self-concept;
- development of creativity;
- formation of organizational and communication skills;
- formation of relevant hands-on/real life and professional competencies;
- increasing success.

4. Realization of Interactive Approach

The following approaches form the methodological basis of interactive learning:

– Activity approach, the main thesis of which, regarding the development of personality, is that a person discovers the properties and connections of the elements of the real world only in the process of activity and on the basis of its various types. Scientists have proven that the student can cope with material better if they are aware of what is the aim of their activity. Therefore, conscious learning involves, on the one hand, the implementation of appropriate actions by the teacher with the learning material, not just its observation and listening, on the other – the transformation of the material into the main purpose of these actions, i.e. solving learning problems. According to the activity approach, the stages of knowledge acquisition are considered to be the stages of activity acquisition. The process of learning from the standpoint of didactics is organized by the teacher or the student into a purposeful, self-directed, reflective and transformative activity for the acquisition of knowledge.

– Personality-oriented approach. One of the aspects of the modern reformation of national education is the mastery of a new philosophy of education and methodological reorientation of the educational process to the development of personality, the formation of its basic professional competencies. The basis of personality-oriented education is humanization. Focusing the high school on the student's personality, showing respect and trust in them, understanding their needs, interests, goals impact the process of their formation. The humanization of the educational process is realized, in particular, through the consistent individualization of the pedagogical process – the content, methods and forms of teaching and learning. It presupposes the responsibility for the available experience and level of students' achievements, the orientation of the personality, and interests. Personality-oriented education is not the formation of a personality with predetermined properties, but the provision of favourable conditions for the full identification and development of the personal functions of the student.

– Systematic approach includes the fact that knowledge is built in the minds of students according to the following sequence: basic scientific concepts – the main provisions of the theory – consequences – application. Therefore, students need to be equipped not only with factual knowledge of theory but also with methodological knowledge, i.e. knowledge about the most important elements of knowledge and structural connections between them. In this case, the elements of knowledge are knowledge that is characterized by relative independence, those that in the learning process become the object of study, or a means of solving theoretical, practical or educational problems.

– A complex approach provides a thorough, strong system of knowledge. This approach is a consequence of the application of the law of dialectics, according to which each phenomenon should be considered in all of its connections and mediations.

– Synergetic approach. This scientific direction of the theory of self-organization formulates the principles of self-organization, which operate at all structural levels of matter. A modern scientific paradigm that combines knowledge about systemic nature and man, the functioning of complex systems, matter and spirit, on the methodological basis of which a significantly new picture of the world is created. The technique provides a person with many opportunities for self-development within socio-cultural norms. The task of education in this context is to involve the individual in the social and humanistic path of their possible development.

– Competence approach determines the focus of the educational process on the formation and development of key hands-on/real life and professional competencies of the individual. It strengthens the actual practical orientation of education and focuses on its results.

Today in high schools use the following interactive methods: workshops, situational tasks, master classes, press conferences, testing, case methods, game trainings, round tables, world cafes, multimedia lectures and practical classes, electronic educational publications. All of them help to form the real life potential of future professionals (*Ostapchuk, Myronchuk, 2014*).

Interactive learning in the structure of blended education helps to: create educational materials for a visual demonstration of educational information; store them within specially designated resources, with the ability to quickly access them; control and correct knowledge and skills acquired in the learning process; build an individual scenario of conducting lessons; access information from various online resources on personal mobile devices at any time. Internet services provide the ability to use, process and transmit data regardless of the location of the specialist while providing communication between participants in the educational process (*Gulivata, Bondar, 2019*).

Here is an example of a lesson for graduates:

Round Table (group discussions) on "Management of a Patient with Edema Syndrome". Mini-presentation of the teacher on the main points of the topic with the help of multimedia Internet presentations (Prezi, SlideShare, SlideBoom, PowToon, Emaze, Prezentit, Menti, etc.). A teacher divides students into groups in breakout rooms of the electronic platform; distributes cards for assessing groups. Groups are invited to get ready with questions according to the topic (diseases that co-occur with edema) in the form of an online poster, business card or video message (Glogster, VectorPaint, ThingLink, etc.). After each group's presentation, other students ask questions. After discussing reports, a unified approach to the tactics of examining and treating patients is formed, in parallel involving studying Internet resources with guidelines, protocols, orders and recommendations of societies of Ukraine, Europe and America (Jamboard, Padlet). Separately, a teacher can offer to prepare a detailed clinical task to visualize the topic. It is also proposed to take a test final control on such platforms as Edmodo.com, Quizlet.com, Kahoot.com, Moodle.com, etc. A teacher summarizes making comments and arguing their conclusions.

5. Conclusions

Thus, the use of various forms of interactive learning is a promising direction to ensure the introduction of blended learning in the system of higher education institutions, especially for the continuous professional development of specialists, including doctors and pharmacists. Interactive methods offer a purposeful process of acquiring knowledge, skills and abilities

carried out by educational institutions of various types within the framework of continuous education, part of which may be implemented remotely using information and communication technologies and teaching aids. They ensure participatory and cooperative learning, help develop hands-on/real life and professional competencies and improve students engagement.

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TRANSFORMATION OF THE ROLE AND IMAGE OF A WOMAN IN THE CONTEXT OF UKRAINIAN CULTURE OF THE XIX-EARLY XXI CENTURY

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Summary

In Ukrainian culture women are an important component of the culture of our people. In a traditional society one of the testimonies of which folklore is, the emphasis was on the various incarnations associated with the feminine. The feminine principle was manifested in family and ritual folklore. The role of a woman in the context of Ukrainian culture has been transformed in the process of historical development. In the culture of the Soviet period the equality of rights and freedoms of both sexes began to be emphasized. In most works of art the idea of equality between men and women is postulated, there is a desacralization of the feminine principle as one that is the bearer of the essentially valuable. In this period it is possible to involve as sources not so much folklore, but other forms which act as personification of cultural values. Accordingly, this change not only forms of manifestation of the essence of understanding of the feminine principle but also its position in culture needs to be covered. In the XX century the idea of the universality of women is formed, which can easily combine different tasks, depending on social situation. In modern culture there are several key images associated with the beginning of a woman. The role of the woman-mother, which correlates with others, remains invariably important. The issue of defending gender equality in Ukrainian society is becoming relevant.

Keywords: woman, Ukrainian culture, transformation, folklore, gender roles.

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1. Introduction

In Ukrainian culture women have always occupied an important place. She was perceived as a guardian – a potential successor to the family, one who has sacred knowledge. It was the woman who preserved and broadcast cultural customs, rituals, and basic values of the ethnos. This function of a woman was most clearly represented in folklore. Acting as a center of folk art, folklore absorbed the most important and enduring value. Different incarnations of female origin were manifested in family-ritual folklore, because during her life a woman went through different stages of her formation and was a direct participant in most of the ritual actions. And a significant part of folklore was associated with women, because men could be far from home and family due to objective and subjective reasons which changed over time. However, women remained the backbone of the family, protecting and raising children, participating in ritual activities related to sacred activities aimed at increasing well-being, nurturing health and striving to preserve the essentials that form the basis of the Ukrainian ethnic group. That is, folklore remained one of the most reliable sources, which allows us to reveal the role of a woman in the culture of the XIX century. However, it should be noted that the position of a

woman in the context of culture has been transformed in the process of historical development. Moreover, in many respects folklore ceases to play the role of a translator of cultural attitudes and values because in the XX century many forms of rituals disappear, being artificially eliminated and banned by the Soviet government. In place of folklore, which served as a center of nurture, mysterious knowledge and ethnic uniqueness of the people come the author's works, in addition, those that meet the guidelines of socialist realism. There is a formation of another type, role and purpose of a woman. Most works of art postulate the idea of equality between men and women, but there is also a desacralization of the feminine principle as a carrier of the essentially valuable things. In this period it is possible to involve as sources not so much folklore how many other forms which act as personification of cultural values. Accordingly, this change not only forms of manifestation of the essence of the understanding of the feminine principle, but also its position in culture needs to be covered. After all, after Ukraine gained independence, the transformation processes became even more flourishing. That is why it is expedient to consider the change in the image and role of women in the context of Ukrainian culture of the XIX – early XXI century.

2. The image of a woman and its significance in a traditional society: the Ukrainian context

The study of culture of the XIX century is possible through the prism of various sciences – historical, art history, culturological, ethnographic. The development of modern intelligence related to the coverage of the role and importance of women in society, aimed at revealing new perspectives on the seemingly already known and established information. It is worth noting that in recent years there have been a number of works in which the view of folk art which has been widespread so far is somewhat denied. There are works that force to demystify those provisions that have already acquired a “textbook” character. However, not all of them deserve a critical attitude and need deep thinking.

A number of researchers note that the position of a woman in Russia (from the ninth to the fourteenth centuries) was one that demonstrated gender equality between men and women when it came to free subjects. In particular, it concerned legal components, civil, economic issues. Parity existed: “a) at the household level and in the family between spouses; b) in civil law relations at the conclusion of contracts and compensation of losses; c) in all types of economic activity, especially among the upper strata of the population at the national level; d) women and men as representatives of the same sections of the population enjoyed the same judicial and legal protection” (*Chernjakhivsjka, 2016*). At the same time, the process of women losing their position is gradually beginning, which intensifies after the Ukrainian lands become part of the Russian Empire. The main reference point for assessing the position of women in the society of that time was the work of Domostroy, the provisions of which contradicted both common sense and Ukrainian customary law. The wife in the family had to adhere to strictly regulated behavior, non-compliance with which was punished by both the husband and the church” (*Chernjakhivsjka, 2016*).

The patriarchal structure of the family was widespread in society, where it was the man who was responsible for both the children and the woman. These guidelines limited the freedom to make decisions, the ability to take responsibility independently. “The patriarchy of Ukrainian culture was manifested in other things, in particular at the level of family and marital relations, where the final right to vote always remained with the father – the head of the family who was considered responsible for the behavior not only of his children but also of his wife. Even in

the case of a crime committed by a married woman, the responsibility lay with the man who “neglected” her (Kis'). In many ways, women were deprived of the “voice”, the right to make personal decisions, being a kind of hostage to the way of life that existed in society. A woman's social status depended on a number of factors, but the right of her father, and later her husband, to make rather difficult decisions was unchanged.

Modern researcher Oksana Kis' notes that given the functioning of traditional culture, it is difficult to operate with the concepts that are common now. Women had much fewer rights and freedoms or rather their importance was due to the spread of partnerships that involved working together in the economy. “Traditional culture is based on other principles, the concepts of human rights and freedoms do not apply to it, they do not function in it. If we talk about gender relations, then in traditional culture there is particular the principle of complementarity, according to which social roles divided into male and female must work in a partnership. The basis of the peasant family was agriculture (farming or cattle breeding, in which mostly male labor is used) and male property” (Kis'). The very traditional culture inherent in a traditional, pre-industrial society is in fact one of the longest stages of human development. This form lasted for thousands of years and was associated primarily with “the agrarian system, low-dynamic social structures and the traditional way of socio-cultural regulation. In a traditional society, the main producer is not a man, but nature” (*Tanchyn, 2008: 62*). Due to the fact that the majority of the population is engaged in activities related to nature, agriculture, the division of labor is simple. In such societies, as I. Tanchin points out, there is considerable inertia, innovations are quite small. In a traditional society, the values, functions and responsibilities of each member of society are clearly defined and are not comparable to modern ones.

Despite the fact that there was a patriarchal system on the territory of Ukraine, it was quite different from what was typical in other Eastern European countries. Although the woman was under the control of her husband, she had property that could be inherited from mother to daughter. Including the woman was able to dispose of money from the sale of “women's economy”. “It is worth mentioning the opportunity for women to dispose of a certain amount of money (received from the so-called “women's economy”- gardening, dairy). Another thing is that in the family farm most of the income came from farming and cattle breeding and accordingly was at the disposal of the husband” (Kis'). A woman had the opportunity to trade in such products as textiles, dairy products, certain horticultural products and to spend the earned money on her own thinking.

The beginning of the period of aspirations to fight for gender equality in the Ukrainian space begins at the end of the XVIII century which happened under the influence of revolutionary events that took place in Western Europe and enlightenment ideas. The formation of a number of societies and organizations that supported the growth of women's self-awareness began to play an important role. This was facilitated by appearance in 1812 of the so-called “Women's Patriotic Society” (community) – the first organization in the Empire, which aimed to achieve public goals. This organization initiated the history of organized women's political activity in the Russian Empire” (*Chernjakhivjsjka, 2016*). Awareness of the intelligentsia in the development of feminist movements in Western Europe played an important role. In their theoretical works, writers, critics and politicians are beginning to defend the idea of the need to achieve women's equality in socio-political life. At the same time, this was mostly due to the upper classes while for the lower classes these shifts were not very relevant and accessible.

A significant role in the gradual growth of women's rights is the abolition of serfdom as well as the active position of a number of representatives of the nobility who began to defend the possibility of higher education for women. This process was associated with appearance

of women's courses. If in 1892 women who were holders of electoral property qualifications could only authorize their male relatives to participate in the elections, in 1917 the Provisional Government issued a Decree "On holding elections of public city councils" and "Provisional rules on holding elections of public city councils", where it was emphasized that all male and female citizens of all nationalities and religions who have reached 20 years of age may participate in elections.

By turning to folklore as one of the informative resources you can get information that reveals other issues related to the role and importance of a woman. Folklore is a form that preserves a deeper layer of folk wisdom which gives a woman much more importance. At the same time, the woman is presented in it in different ways, taking into account the genre variety of oral folk art. "Folklore, rituals and customs gather and consolidate the experience of traditions, concentrate part of the cultural life of society, groups, families, which are related to situations and actions that are repeated regularly, become stable, polished by experience, and require verbal consolidation. Since ritual folklore is associated with ethnographic reality, its fullness of various ethnographic realities, structural and semantic elements becomes clear" (Koval', 2010: 102). G. Koval wittily notes that the culture presented through the prism of folk traditions has many differences related to ethnic characteristics, regional and genre characteristics.

A woman is an obligatory participant in the natural cycle of human existence which included a number of rituals associated with the family – maternity, wedding, funeral and memorial. If by the XIX century they are such that they have a fairly high level of significance, then gradually a number of them begin to lose their sacred meaning. The development of the spiritual principle in the XIX century contributed to the fact that it was possible to distinguish the idea of the trinity of the image of a woman: Mother of God, Woman-Mother, Woman-Motherland. The hypostasis of a Woman-Mother was most traditionally presented. In fact, the maternity rites were one that confirmed the status of the family. "According to customary law, the family came into force only when it had children" (Babenko, 2013: 65). According to researchers, family rituals associated with the birth of a child could be divided into four stages: prenatal, maternity, postpartum and those related to the socialization of a child. Rites related to births, the choice and naming of names, the election of godparents, and baptism proper played an important role. From birth there was a woman and not only the mother but also the midwife.

The woman-mother always sang lullabies to a child which retained the function of a talisman. The text which had a magical meaning was to protect the baby from disease and disaster. In addition to lullabies, the mother could sing other songs that would perform a lullaby function. Quite often while singing the lullaby, her mother did some work – spinning, embroidering. It was the mother who "from an early age involved girls in the care of young children, organized their games and prepared a dowry accordingly. The mother explained to her daughters about the purpose of certain subjects, about their future family life and the desired son-in-law. The mother-woman involved young women-girls, according to their age category in preparation of the dowry (weaving, embroidery, quilting, etc.)" (Tkach, 2018: 164). The woman-mother instructed, brought up, formed the availability of knowledge about certain areas of human life.

When it comes to humorous songs, a woman who heads a family often takes on the full burden of responsibilities. In this type of songs ridiculed the human vices that ruled over men – laziness, idleness, drunkenness, etc. There have been many examples of a woman beating a man, but O. Kis' points out that this was unlikely in a traditional culture.

Female images were comprehensively presented in the wedding ceremony, because here were presented such parts as: pre-wedding (courtship, inspection, engagement), the actual

wedding, post-wedding. Moreover, the woman performing different social roles acquired different colors in the folk tradition. The bride's mother, the bride, the matchmaker – each of them was assigned a role in the ceremony. It is quite interesting that a lot of funny episodes were used at the wedding and most of them were performed by women, not men. Humorous songs were performed by groups of women who made fun of matchmakers, boyars, and lamps. And often there were both 2 girls' and 2 women's choirs. These choirs not only commented on all the main stages of the wedding, but also spoke on behalf of the main actors.

3. The image and role of a woman in the culture of the Soviet period

In Soviet times both the image and the role of a woman were transformed. This process is due to changes in ideological guidelines, political sentiments prevailing in society. The Soviet government is beginning to radically change the culture. As a result, there is a destruction of folklore, which contained the great wisdom of centuries, customs, rituals and traditions. “Thus, the new government destroyed folk customs and culture, traditional social and personal morality. Entire layers of traditional spiritual and psychological culture were erased from the world of the individual” (*Nepipenko, 2019: 117*). Instead, another layer of cultural and social values is formed, which are actively beginning to be implanted in society. Although the main key aspects related to women's beginnings remain at the general level, priority activities are beginning to change. The system is being transformed, according to which a woman in the Soviet Union is much more progressive as she rejects patriarchal attitudes and moves in the direction of freedoms. “A woman's identity was imagined in terms of her relationships with her family, children, society and the state, but not necessarily in that order. And finally, the most important thing: the Bolsheviks used the position of women under Soviet rule as a way to prove their modernity and their place in vanguard of European countries” (*Choi, 2015: 118*). Evidence of this are such visual sources as cinema, posters. In particular, the role of a woman begins to be associated with the performance of quite difficult physical work which, on the one hand, would allow her to position herself as an equal to a man. On the other hand, a woman's strength leveled her femininity. Little attention was paid to supporting and broadcasting the guise of a mother. “The cinema of the NEP period also exerted a significant agitational and psychological influence on the broad masses of population, including women, imposing a pattern of correct class-proletarian behavior, depicting an exemplary strong, equal to a man new working woman” (*Nepipenko, 2019: 119*). The formation of the image of a working woman corresponded extremely well to the guidelines put forward by the representatives of the Bolshevik ideology, because the process of building a country of workers contributed to the leveling of individual experiences. These images were broadcast not only in cinema, which was much less accessible to the general public, but also in posters. They were a common means of propaganda, played an important ideological role and contributed to the education of Soviet citizens. Moreover, positioning a woman as equal to a man should emphasize their freedom, the ability to be relieved of the burden of household chores and “purely female” responsibilities. “After the revolution the policy of the Soviet state in the “women's” issue, aimed at involving women in social production, contributed to the rapid development of emancipation with all its consequences. As a result, women's participation in the hardest manual labor, traditionally “male” professions, was defined as a great achievement of socialism, a manifestation of true equality and the liberation of women from “domestic slavery” (*Shalyghina, 2009: 134*). In fact, in the post-revolutionary period there is a formation of the role of a woman whose self-realization is associated exclusively with the adoption of

male codes of behavior, but then there is an evolution associated with maintaining the previous figure and adding traditional women's occupations.

The question arises: why are women's images and roles so transformed in Soviet times? This period is characterized by a revision of values because if a woman kept the guidelines of traditional culture, she would not be ready to build a new society, "whose civic duty was to reproduce new members of the large working family of the Soviet people, so the proletarian state for the purpose of mobilizing it for this" (*Nepipenko, 2019: 120*).

During the Second World War, the image of Mother and Motherland began to become much more important. They are used as a tool of ideological struggle. This can be traced to an example of the development of posters. Despite the fact that images of mother in posters of the Soviet period are beginning to be broadcast, they have features that convey masculine rather than feminine features. Strong-willed and decisive insults prevail. The appearance of I. Toidze's poster "Motherland Calls" becomes exemplary and one that acquires a symbolic meaning. However, in the visual images there are images of mothers with children who call on them to save from enemies. In addition to the above-mentioned images, there were also images of a front-line friend or nurse, a woman exiled to Germany, a concentration camp prisoner, a partisan, a donor and others. It was the woman who symbolized the Motherland, the Fatherland and Europe which the Allies liberate from the fascist yoke ("Europe will be free!" poster) (*Shalyghina, 2009: 136*). The main emphasis in women's images of the Soviet period was the emphasis on equal rights and opportunities as in men. At the same time, in posters created in Western Europe and the United States women were more associated with the role of mother. The monument "Motherland" by the sculptor V. Borodai becomes a vivid embodiment of the image of a strong and strong-willed woman capable of defending her children, which was broadcast during the Second World War. This monument was unveiled on May 9th, 1981, which was attended by Leonid Brezhnev.

After the Second World War the portrayal of a woman as capable of raising the economy, promoting the development and reconstruction of the country has remained unchanged. This is due to the fact that there were fewer men than women. At the same time, the image of a mother-woman, a woman-heroine who raises many children on her own was actualized. This was aimed at adopting orphans many of whom remained after the war and providing them with everything they needed in orphanages. The need for marriage registration is highlighted, while others are not recognized. The award to mothers-heroines is established. "To qualify for the award, a woman had not only to give birth to the required number of children, but also to raise them. Therefore, the candidate will receive the Order of the Mother-Heroine only when the youngest child out of ten will be one year old, provided that the remaining nine live to this time. Mothers who do not raise their children cannot claim the award" (*Attwood, 2015: 99*).

The gradual breakaway from the masculinized image of women which was characteristic of the beginning of the Soviet period of twentieth-century culture is being replaced by the principle of a gradual departure from revolutionary-colored forms. The idea of proportionality of two principles begins to be postulated – socio-political and family-domestic in the image of a Soviet woman. The image and ideal of the Soviet woman in the period after the Second World War is quite clearly visualized through magazines. Magazines such as "Rabotnitsa" and "Krestyanka" became a kind of translator of the ideological guidelines of the time. Their pages begin to depict not only women workers in the workplace but also at home space. One of the favorite subjects of magazine publications during postwar years is the housewarming. Quite idealized paintings are presented which in many respects differed from reality. At the same time, the emphasis is on the universality of a woman, her ability to transform in accordance

with the chosen social role. “New situations involve new roles for women. The standard role set imposed on a woman by pre-war magazines was “worker-mother-citizen representative.” After the war this set remains fundamental but other very unexpected social practices are also encouraged” (*Kir'yanova, 2007: 139*). The gradual “softening” of the image of women in the second half of the twentieth century is associated with the need to stabilize society to rely on traditional values and to move away from revolutionary fervor. Some reliance on the “bourgeois” values that were rejected after the revolution is now beginning to be postulated. Their development is due to the fact that they are offered to the masses, they are perceived as those who can stabilize and consolidate society because the majority of the population sought to settle down and live better.

Women portrayed in magazines looked neat and attempts to emphasize feminine traits were no longer considered to be rejected. “The desire to be feminine, to emphasize with their clothes and accessories their individuality is encouraged not only in specialized sections but also in passing in major publications. Thus, the mention that a military woman is elegant in civilian clothes is not considered an encroachment on her equality with men. Skillfully applied make-up, hairstyle, expressive look cease to be the prerogative of actresses – posing in front of the camera is not forbidden to ordinary workers” (*Kir'yanova, 2007: 140*).

4. Ukrainian culture since independence: the role and status of a woman

After Ukraine gained independence, a process of significant changes in the field of culture took place. Including the existing transformation of female images in artistic practice, the gradual change of gender policy as well as the formation of new ideals. One of the central ideas is the idea of Berehynia (woman-guardian). It had significant potential for women's integration and the principle of matriarchy was beginning to be emphasized. O. Kis' notes that the image of Berehynia, as one who is the protector of the family hearth is not an ancient element but something that was formed in the late 1980s. Moreover, its source are works of art which are formed in the wake of the national revival. Namely, the “Berehynia” was invented by Vasyl Skurativsky and Vasyl Ruban who independently began to use this image as a kind of embodiment of the goddess of the hearth. In fact, neither in Ukrainian folklore nor in Slavic mythology there are practically any mentions of Berehynia” (Kisj). In fact, researchers identify a number of female stereotypes that are characteristic of today. In addition to Berehynia, there are such as: Barbie, Business Woman and Feminist.

The image of Berehynia is associated first of all with motherhood, it is one that sacralizes reproductive functions. This approach is in line with the guidelines of traditional society. The image of a woman – Barbie, associated with an emphasis on femininity, forms a visual that attracts men as well as focuses on external factors and behavioral lines. A business woman is an image of a woman who is forced to take duties of earning money but would prefer to take on a different guise. The image of a business woman acts as one that is quite leveled including in the media which acts as a factor in strengthening the position of men. The image of the Feminist is the least popular and one that provokes a lot of criticism from both women and men. A domestic author S. Filonenko, based on the above-mentioned images of the modern woman, singled out those that are more in line with the minds of young people – they are Cinderella, Glamorous Maiden, Bitch Woman, Superwoman, Cosmonaut, Military Woman (Filonenko). The traditional image of Mother is widely represented in the contemporary Ukrainian art space, in particular in sculptural images as one associated with the perpetuation of historical and cultural figures.

Despite the fact that the development of technology and changing conditions of modern life, in the culture of Ukraine there is a process of revival of values and traditions characteristic of authentic folk rituals. There is interest in including elements of wedding ceremonies in the lives of modern Ukrainians. "Under the new socio-economic and cultural conditions, the wedding ceremony is changing, although its basis remains traditional. As before, it consists of three main cycles but significantly shortened and transformed. The wedding is taking place now, preserving the main traditional ceremonial invitations of the guests, the meeting of the newlyweds, the feast, the distribution of the cow, the gifting of the brides, the symbolic dedication of the girl to womanhood, etc." (*Babenko, 2013: 66. (Babenko, 2013: 66).*)

The formation of folklore is also present in modern art practice. However, it takes other forms. From now on, the process of folklorization is connected with the collective reproduction of the author's material, which acquires changes in the process of performance. "In the creative process, the role of author's creativity has significantly increased. And not only in the city: in the villages talented masters and groups create many songs, some of which are later folklorized. Collectivity nowadays means mastering author's and folk songs by everyday musical practice. In this case, works distributed in this way may undergo certain changes in the lyrics and melodies (*Novohats'ka, 2017: 34*). So, the point is that there is more folklorization than functioning of authentic forms of folklore. Accordingly, they are deprived of all the compositions which were present in the ritual actions. There are mostly examples of the use of elements of traditional clothing, song and dance material, decorative and figurative art, but they are deprived of the possibility of being represented as a complex and a single syncretic activity.

After the collapse of the Soviet Union, not only folklore forms began to be revived and developed. Religion is also being actively introduced in Ukrainian society, returning to the positions it held in the 19th century. At the same time, this sphere of modern culture, especially that represented by Orthodox Christianity, occupies a very specific position related to women. On the one hand, there is an active participation of women in the rites of baptism, as well as in those associated with the great Christian holidays – Christmas, Easter, Baptism, Trinity. However, the participation of women in a number of events related to the institution of the church has traditionally been prohibited. "The place of women in church rites has always been secondary: women were forbidden to enter the altar, it was forbidden to attach to certain icons that are in it, it was forbidden to study in theological seminaries, and so on. This is primarily due to the betrayal of Eve, who is considered the great-grandmother of all women (*Tkach, 2016: 167*). All these factors make it possible to say that the female component in church rites is encouraging and restrictive.

As we look at the system of social and legal opportunities for women in the late 20th and early 21st centuries, we should note the preservation of certain attitudes that were laid down in the early Christian times. A woman is perceived as a strong and strong-willed person who is equal to men in social relations. However, the image of a woman changes. While in the Soviet period, especially in the post-revolutionary period, the idea of the woman was dominant with many masculine rather than feminine figures, by the end of the XX century female images became more and more sexy. This level of presentation of the feminine principle is embodied in advertising, films, photography and other visual forms. The XXI century is characterized by the struggle for a tolerant attitude to the representatives of different races, religious beliefs, gender, people with different physical abilities, which leads to the absence of a single and constant dimension of the image of a woman. With the development of ideologies of feminism, the right to have a choice in the question of desire or unwillingness to be a mother, the sphere of professional activity, the ability to choose a way of life, to have financial independence from men is

defended. At the same time, in many families there are ideas typical of traditional society, which include the main responsibilities of women to raise children, housework, etc.

In political and social terms a number of gender issues remain in Ukraine. In particular, it is about the need to take a number of actions aimed at achieving gender equality. V. Chernyakhivska proposes to highlight the following: “actively implement the principles of anti-discrimination policy, policy of positive actions and empowerment; strengthen measures against sexual harassment; intensify gender policy; to affirm the principles of the policy of commensurate value (equality of pay), etc.” (*Chernyakhivska, 2017: 210*).

5. Conclusion

The image and role of women in the space of Ukrainian culture demonstrates the presence of constant features that have become dominant. One of the key images that has not lost its relevance is the image of a mother. It acts as a translator of cultural values inherent in traditional society. In the culture of the XIX century it is mostly represented in folklore sources. The feminine principle in traditional culture was presented as important but demonstrates dependence on men, the principle of subordination. The image of a woman in this period depends on social status because while members of the intelligentsia and the upper classes begin to fight for rights, for women of the lower classes the problem of survival remains important.

In the culture of the Soviet period there is a gradual transformation of the image of women. In the post-revolutionary period, the equality of rights and freedoms of both sexes began to be emphasized. The Soviet government portrays women as those who easily master men's professions, have the ability to reject fundamentally women's affairs and act as universal personalities. In visual evidence, women have masculine features. During the Second World War, the image of the mother began to develop again, which does not lose relevance in the post-war period. Gradually, the idea of a woman who can easily combine different tasks, acting as a skilled worker – a mother and a social activist. Attention is once again drawn to the traditional values that guide the stabilization of the economic and political situation in the country.

There are several key images of women in modern culture. In particular, the traditions laid down in folklore are being revived which are manifested in the desire to reproduce elements of folk traditional authentic culture. The role of the mother remains unchanged which can now be combined with other images. The issue of defending gender equality in Ukrainian society which will be accompanied by respect for women's rights and freedoms is becoming relevant. It is important to achieve non-discrimination and tolerance.

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THE ERA OF THE MARTYRS IN THE HISTORICAL MEMORY OF THE SYRIAN CHRISTIANS (FOR THE PERIOD BETWEEN THE LATE IV CENTURY AND THE FIRST HALF OF THE V)

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Summary

This research is aimed at studying the nature of Christian Syrians' historical memory about the era of the martyrs on the Syrian territory for the period between the end of the IV century and the first half of the V. That was the time when Christianity was developing as the state religion in the Roman Empire. We tried to figure out how the historical memory of the martyrs reflects the peculiarities of the cultural identity of the Syrians and their attitude to representatives of other ethnic groups. Also we tried to create a systematic historical review of the main social and ideological functions that were inherent in Syrians' historical memory about the era of the martyrs (for the period between the late IV century and the first half of the V).

This article is written under the principles of historicism and through several methods, namely historical-chronological and historical-typological. They are also complemented by structural-functional analysis.

Keywords: Roman Syria, late antiquity, early Christianity, martyrs, historical memory.

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1. Introduction

The era of martyrs is a very significant part of the history of Christianity. For the whole centuries, theologians of this denomination were drawing extensively stories about the lives of those who endured torments and died for Christ in favour of their doctrine.

The main criterion of holiness for martyrs was a martyrdom that smoothes out all their previous way of life. Thus, the former harlot, the Roman martyr Boniface (*Passio Sancti Bonifacii, 1731: 326*) who decided to suffer together with Christians when he saw their execution, received wide veneration because of the canonization. A significant part of the information about the martyrs became known for the so-called acts of the Martyrs, i.e. martyrdom acts that were considered to be based on legal records of martyrs' interrogations in Roman courts.

2. Problem statement

It is interesting to trace the reception of historical plots relating to the era of martyrdom in different eras. The narrative of martyrs' history changed quite strongly for the period between the late IV century and early V. It was a period when Christianity was actively evolving from a previously persecuted religion to a state and dominant religion. The texts and plots that were previously used to maintain faith became serious elements of the ideological and political struggle and an important part of local historical narratives.

Studying this problem on materials of the eastern provinces of Rome allows to notice some important problems and features of the region, the ideology of its inhabitants, key decision-makers and church elite.

The main aim is to clarify how images of the Syrian martyrs were used in the ideological and political struggle in the Syrian provinces for the period between the late IV century and the first half of the V.

3. The analysis of researches

Unfortunately, such fields, as syriology develops rather slowly. Therefore, investigations of last century also can contain actually significant observations and conclusions. Many studies are devoted to the phenomenon of martyrdom, among which one should single out comprehensive studies of Vasily Bolotov on the history of early Christianity (*Bolotov, 1910*) and Alexei Lebedev on the era of Christians' persecution in the Roman Empire (*Lebedev, 2006*). As for the large body of modern studies on this topic, it is worthy to single out the work of the Romanian researcher Vladimir Ivanovici, who is trying to use methods of the new cultural history in studies on the phenomenon of martyrdom (*Ivanovici, 2013*). The authors primarily examined the course of events during the persecutions of the times of the ancient church and their context.

4. Syrian-martyr history and memory of them.

A distinctive feature of Syrians' situation of that period is that they lived in two permanently warring empires, namely Persian and Roman. Moreover, while in the Roman Empire Christianity became the state religion (in the reign of Theodosius the Great), in Persia persecution of Christians still occurred sporadically. Thus, for some Syrians, persecution and martyrdom were not exclusively a fact of the past, because they still could become persecuted if they fall from grace of the Persian authorities.

The main sources of this study were created between the IV and V century. Martyrdom of Sharbil, (*The acts of Sharbil, 1864*) Barsamya, (*Martyrdom of Barsamya, 1864*) Samonas, Gurias, Abibas (*Martyrdom of Habib, 1864*) and Mar Shimon, (*Mâr Simon, 1915*) were reviewed as well as other hagiographic texts (*Istoriya o Yevfimii, 1990*), materials of church sermons (*Ioann Zlatoust, 1896*) and several historical works of that period (*Sokrat Skholastik, 1996, Feodorit Kirskiy, 1996*).

In the sources, it is possible to notice two very definite traditions, Antiochian and Edessenian. The first one relied on the memory of the Antiochian martyrs of different eras, from Ignatius the God-bearer to those affected by Julian the Apostate Juventin and Maximin. These narratives became the part of the urban myth of Antioch as a city of special Christian piety and feat. At the end of the IV century, these concepts were especially actively promoted by the preacher John Chrysostom who lived in this city and dedicated the whole set of sermons to the martyrs from Antioch. The Antiochian tradition, despite the proximity of its historical destinies to the fate of other cities in Roman Syria, is quite strongly distinguished by the influence of the Greek-language tradition.

The texts about Edessenian martyrs' sufferings were composed mainly in Syriac language. Moreover, the Martyrs have some specific features despite following the common Roman tradition.

The focus of this paper is on the texts of the Edessenian tradition in Syriac. They express precisely the Syrian identity of that period, even to a greater extent than Antioch ones.

In total, there are four known original Syrian martyries (*Paykova, 1990: 6*). The first ones are seem to be composed at the end of the IV century, namely the Acts of Samonas, Gurias, and Abibas. They became a definite model for the further development of act literature (*Meshcherskaya, 1984: 5*). Then came the acts of Sharbil and Barsamya which claim to describe the events of the II century. However, they were also compiled for the period between the end of the IV century and the beginning of the V. The indicated acts were substantially finalized and supplemented by descriptions of events' context even if they were rooted in more ancient texts.

The historical memory of the era of the martyrs is often the historical memory of the era of paganism, which contains a hidden or explicit polemic with it.

This controversy is especially salient in the acts of Sharbil. Sharbil was the main pagan priest of Edessa, who, according to the acts, lived in the era of Emperor Trajan (98-117 AD). As for the king of Osroena, Augar VII, he was the ruler of Edessa at that time. He was dependent on Rome. Trajan, according to the chronology of acts (circa 113-114 AD), began the persecution of Christians in the 15th year of his reign (*The acts of Sharbil, 1864: 41*). The reference to persecutions under Trajan was probably a common point (or literary topos) for the lives of the martyrs, the reason for which was the description of the persecution in Eusebius of Caesarea's *Ecclesiastical History*. The Early Byzantine historian, as well as the author of the Acts of Sharbil, points to a rapid cessation of persecutions under the Trojan's rule. Eusebius explains it by the famous letter of Pliny the Younger to Trajan after which the emperor allegedly ordered to stop hunting for Christians (*Yevseviy Pamfil, 2007: 127*).

J. Segal, who studied the history of Edessa, formed a hypothesis that the legend could arise during the historical persecution of Decius in the middle of the III century (*Segal, 1970: 82*). The text of the martyrdom of Sharbil and Barsamya, in its turn, was compiled under the bishopric of Rabbula of Edessa (d. 432/436).

The texts of the Acts of Sharbil and Barsamya are abounded in inconsistencies (*Martyrdom of Barsamya, 1864: 64*), which should be explained by the desire to emulate the Roman style of composing martyrdom acts.

At the same time, these acts reflect specific Syrian realities. Thus, the main gods, to whom people have to make sacrifices (because of the emperor's decree), were Semitic deities, not Roman, namely Bell and Nebu (*The acts of Sharbil, 1864: 41*). The Babylonian cult of Bela or Baal is well known for the biblical books of Isaiah (46: 1), Jeremiah (51:44) and especially the apocryphal chapters of prophet Daniel's book (*Dan 14: 1-32*), whose protagonist makes fun of the ancient Semitic deity, saying that it can neither drink nor eat its oblations. The last argument echoes what Sharbil said during the interrogation. Babylonians also believed in another deity, Nabu, who was the god of writing. It seems like the authors of the Acts knew about him from the Old Testament. Isaiah mentioned this god (46: 1) along with Baal and Marduk.

There is no information about the cult of the Roman emperor in the lives, so it is impossible to understand why the emperor strived to develop Middle Eastern religious cults that had not any ties with Rome. During this sacrifice, the local Christian bishop Barsamya converted Sharbil to Christianity. Then, the bishop presents a rather detailed description of Trinity's teachings (*The acts of Sharbil, 1864: 43*), which also proves that the dating of the plot is much later than the text of the acts is trying to claim because the earlier Christian Trinitarian doctrine was not so developed.

Next Barsamya's argument is historical. He refers to the plot which was also developed in the 4th-5th centuries. It is about the conversion to Christianity of Abgar V, who was originally a pagan and converted to Christianity after the sermon of the Apostle Thaddeus. If so

outstanding people are converting to Christianity, this religion is at least permissible for existence in the state.

In the plot with Sharbil, we see how a narrative is created for the reader, a narrative, in which the priestly and secular nobility are also involved in persecuted Christianity. The acts of this martyr emphasize that the conversion of the priest to Christianity can be sincere and hard-won. This thought was important in the context of Edessa of the first half of the V century since its episcopal department was occupied by Rabbi Edessa, who was a son of a pagan priest, for a long time (*Life of Rabbula*, 2017: 9).

Returning to the acts of the martyr, it is worthy to note that during the interrogation, the judge Lisany said that the fact that he does not cut off the former priest's ears, with which Sharil listened to gods' secrets and hands with which he made sacrifices, proves his great mercy. The judge was constantly appealing to the imperial power, the bearers of which venerated the gods whom the martyr despised (*The acts of Sharbil*, 1864: 47).

Acts of Sharbil reflect the main features of the Pagan-Christian polemic of the beginning of the V century. Unfortunately, it is difficult to determine which argument is indeed conveying the characteristics of such polemic in Syria, and which is just a trace of similar plots in Roman acts.

At the trial, Sharbil partially repeated Bishop Barsamaya's arguments, who converted him, that the pagans worship the creation of human hands, and these idols cannot do anything by their own. Another line of argumentation was focused on the criticism of pagan gods' morality. About them, Sharbil said: «For one had intercourse with boys, which is not right; and another fell in love with a maiden, who fled for refuge into a tree, as your shameful stories tell.» (*The acts of Sharbil*, 1864: 54). Unfortunately, it was impossible to find any unambiguous analogies in the Syrian pagan religion. It might have been the regular imitation of literary topos from the Roman Martyrs, in which the martyrs recalled the adventures of Zeus or Apollo, emphasizing the pagan gods' immorality and, therefore, the meaninglessness of veneration to them. Obviously, the local Middle East specificity is reflected in the question to Sharbil of whether it is possible to worship the heavenly bodies. The luminaries, after all, give light, unlike idols that cannot do anything. Sharbil replied that people have to honour the one who created all this (*The acts of Sharbil*, 1864: 57). In response, the judge used another argument regarding the evaluation of the power of the deity. Christ was crucified and could not do anything with it, but Sharbil insisted that it was his voluntarily made sacrifice.

After Sharbil they arrested Christian Bishop Barsamya, the one who converted him. However, he escaped death thanks for the rapid cessation of persecution. Acts of Sharbil and Barsamya were crucial for the Christian urban myth of Edessa. Regarding this city, we can draw any firm conclusions only on the persecutions of the times of Diocletian. However, affected Christians were just poor villagers (*Segal*, 1970: 83) whereas and martyrs from the representatives of the nobility or the church elite were much more suitable for a full-fledged historical narrative. Perhaps real prototypes of Sharbil and Barsamya did not exist at all, but the plots of their torment, on the one hand, were arguments in the struggle against the remnants of paganism. On the other, they strengthened the class positions of the nobility. The famous Antiochian preacher, and later the Patriarch of Constantinople, John Chrysostom, also used the historical memory of the martyrs to fight paganism. In a sermon about the martyr Drosida, who was allegedly buried in a village near Antioch, Chrysostom exclaims: "When disputes with the pagans come to us ... and they slander our faith, we will present to them the death of the martyrs." (*Ioann Zlatoust*, 1896: 557). Regarding Drosida herself, it should be noted that the preaching of Chrysostom is the only mention of her in ancient texts, which is the answer why

they relay local traditions about the martyrdom of a saint who was burned at the stake during one of the persecutions. If the author of the Acts of Sharbil tried to give a historical reference to the persecution of Trajan, then Chrysostom did not see any point in this. Thereby, he turned the whole story into a sermon of contempt for death and a kind of apology of Christianity to pagans.

The acts of Gurias, Simon (Shimon) and Aviv (Abibas) describe the real persecution of the times of Diocletian, (*Martyrdom of Habib, 1864: 72*) so they might have been based on some real written evidence that formed the basis of Acts that were created at the end of the IV century. However, the spearhead of popular historical memory associated with these saints is aimed at the event that occurred after their death. Gurias, Shamonas, and Abibas were considered the patrons of the city of Edessa, where two temples were erected in honour of them. The first one was built by Bishop Abraham in 346th year on a mountain outside the walls of the city, and the second one a little later, under its western gate (*Paykova, 1990: 18*). In the oldest among preserved Syrian calendar of the end of the IV century, the 2nd of September is called after St. Abibas, whereas the 15th of November became the day of Gurias, Shamonas and Abibas (*Paykova, 1990: 18*).

Another equally important motive for the existence of the historical memory of the martyrs was to support the Syrian identity and to protest against a lot of tragic Syrian realities.

Thus, in Syria of the period under review, was popular a legend about the events of the end of the IV century: "The story of Euthymius, her daughter Sofia, and the miracle that the confessors of Samonas, Gurias, and Abibas performed with them." (*Istoriya o Yevfimii, 1990*). The plot unfolds around the widow of Euthymius and her daughter Sophia that lived in Edessa when the Roman army came to their billets. One goth warrior decided to stay at Euthymius' house. After a while, he asked the mistress to give her daughter for him. The goth hid the fact that he had a wife in his homeland. The widow refused him several times, but due to the persistence of the goth, she was forced to accept his will (*Istoriya o Yevfimii, 1990: 95*). When the military threat receded, the Goth decided to return to his homeland. The mother, still not trusting him, asked him to swear the oath of allegiance on the relics of the martyrs Shamonas, Gurias, and Abibas. He immediately agreed and did it with the words "How I will treat her and the Lord (will) treat me." (*Istoriya o Yevfimii, 1990: 96*).

Returning to his homeland with Sofia, the Goth introduced her as a servant. Without knowing the local language, Sofia can hardly stand up for herself. When she gave birth to a child very similar to the goth, the first wife, out of jealousy, killed the child, but she, after a little time, was poisoned by maddened of grieving mother. It should be noted that Sophia, as a positive character, did not murder out of revenge; she performed the act of a "God's judgment". Sophia decided that if the Goth's wife will die from the poison left on the child's lips and carefully preserved by its mother, then she is guilty of the death of her child. If she would not die, it means that the child died by God's will (*Istoriya o Yevfimii, 1990: 97*). The wife died, and as a punishment, Sophia was walled up in a crypt, in the same place where the poisoned woman was buried. But here happens a miracle. Martyrs Samonas, Gurias, and Abibas, to with whom she prayed at night, transferred her to Edessa, straight to her native home. In a short while, the goth returned to Edessa, since the threat of a new Huns' invasion has arisen again. One of the locals recognized him, and after a trial, he was executed.

It should be noted that the names in the story are also tailored to ideological needs. For example, Euphemia in Greek means "enjoying good fame", whereas Sophia means "wisdom". Consequently, the authors of the story emphasized these features (*Paykova, 1990: 24*). The text is based on the antithesis of the good heroes (Euthymius and Sophia), and antiheroes (the Goth and his wife). We consider this plot as a fixation in the people's memory of the city's hard times

during army visits, which always placed a heavy burden on residents. These plots are also a kind of identity manifestation. The narrative clearly shows the interethnic conflicts of the Goths and the Syrians and also conveys the problem of the Syrians' estrangement from the Romans. It was times when they had no one to ask for help except their Edessian saints.

Another text that slightly reflects the historical memory of the Syrians in the context of interethnic relations is the work *The History of Persian Martyrs*, which belonged to Maruf, who was Bishop of Martiropolis. Maruf's work is interesting since it reflects the historical memory of Persian Syrians. There is almost no preserved information on them at all. Maruf learned the information about the ancient martyrs from the oral tradition.

One of the key plots of Persian Syrians' historical memory was related to the persecution under Shapur, which was associated with the confrontation of Persia and Rome, during which the Persians suspected Syrian Christians of supporting Rome. This persecution was not only religious but also economic, so the Syrian Christians (according to the text of the martyrdom written by Maruf, *Mar Simon and the Comrades*) were forced to pay a double war tax (*Mâr Simon, 1915: 4*). This is one of the main reasons why this persecution is so salient in Syrians' historical memory. Materials collected by Maruf also prove that.

This persecution affected the Syrians' economic well-being. Thus, in the martyrdom *Mar Simon and the comrades*, the persecution of the Syrians under Shapur is compared to the story of the righteous Job (*Mâr Simon, 1915: 6*) who did nothing wrong but suffered to prove loyalty to God. The Syrians also tried to show that there was no real reason for the persecution and they did nothing bad to the Persian state. Then Maruf recalls that there were also persecutions in Roman lands for 300 years, and says that as for him it does not make Persian persecution a kind of exceptional evil.

The hagiographic monument itself emphasizes that the Syrians tried to show their loyalty to the King of Kings. Moreover, they said that obeying secular rulers and honouring them is their religious duty (*Mâr Simon, 1915: 10*). Maruf also welcomes those Persian authorities that were ready to compromise as well as Christians who did not sectarianize and did not bottle themselves in their teachings; thereby, they did not provoke a conflict. In the persecution of Mar Simon and his comrades, Maruf blames the Jews who allegedly slandered Mar Simon and the Christians before the Persian queen, which provoked the persecution.

Julian the Apostate (361-363) was considered the last persecutor of Christians in Roman Syria. Syrians' hate towards him was largely provoked by the transition of the Syrian city of Nisibin (*Mar Afrem Nisibinskiy, 2006: 107*) to Persian authority (*Mayboroda, 2011: 61*). His struggle with Christianity was not persecution as such (i.e. interrogations and urges to renounce the faith under the threat of execution). Indeed, the cases that the Syrians considered the martyrdom of the times of Julian technically looked like punishments for war crimes. For instance, the martyrdom of Juventin and Maximin; they were executed for violation of military discipline and failure to comply with orders, so formally they were not interrogated as Christians.

In a sermon dedicated to these Antioch martyrs, the Antiochian preacher John Chrysostom tries to emphasize the cunning of Julian, who tried to fight Christianity with more sophisticated methods than his predecessors. Thus, according to John, Julian ordered soldiers to sprinkle food on the Antioch market with the blood of sacrificial animals. Juventin and Maximin deprived those who refused from their property and executed them at night, so as not to demonstrate to all the greatness of Christian courage (*Ioann Zlatoust, 1896: 622*).

Chrysostom (as well as Socrates Scholastic) also describes how Julian ordered to transfer the relics of the holy martyr Babila from Daphna (a suburb of Antioch) to another city (*Sokrat*

Skholastik, 1996: 154). The reason for the transfer was the request of the pagan priest of Apollo, who, due to the proximity to the relics of Babylon, could not focus on prophecy.

This persecution was not reflected in the Acts of the Martyrs in Syriac. However, the Greek text *The History of the Person who loved God* of Theodorite of Cyrus, who gathered old stories about Syrian ascetics, reflects monks' opinion on the emperor Julian. These stories were passed by word of mouth and were recorded by Theodorite around the middle of the V century. Thus, the ascetic Julianus, learning that Emperor Julian was on a Persian campaign and was about to exterminate Christians upon his return, began to pray earnestly. The source further reports that: "during the prayer, he heard a voice saying that the unclean and vile piglet had died." (*Feodorit Kirskiy*, 1996: 160). This is probably one of the later legends that emerged in line with the Syrian tradition and makes Julian one of the main antiheroes of historical memory. In the *Tale of Julian*, the protagonist Julian becomes the murderer of the wicked emperor while Theodorite's Julian just prays for Julian's death.

The popularity of the places of martyrs' veneration is also an important topic. The grave of the martyr Drosida and the tomb of the martyr Babylon have been already mentioned above, but also we have a bit of interesting information about the martyr Elpidius' veneration in the Syrian city of Harran. Thus, his memorial day was celebrated on a ninth day after May calends. The relics of the saint were preserved in a temple built on the site of the house of biblical Abraham and it is necessary to note that the memory of the martyr levelled the memory of the forefather who lived in these parts. Even hermits came down from their caves to the city for the holiday of Elpidius, and it was the only exception along with Easter (*Palomnichestvo*, 1889: 133). Thereby, the relics of martyrs became objects of popular veneration in the period between the IV and V century and displaced many other plots of the historical memory of its regions.

5. Conclusions

The end of the IV century and the first half of the V century is the period when most of the stories about the martyrs were systematized. Besides the relative economic and political stability, this period is also characterized by the activities of many prominent figures of the Syrian Christian church and Syrian intellectuals, among whom were Rabbula of Edessa, Iba of Edessa, Theodorite of Cyrus, Maruf of Manferkat and others.

The active systematization of historical knowledge about the Syrian martyrs contributed to both the establishment of the local Syrian identity and the elevation of the cultural significance of the region on an empire scale, as part of the work was either written in Greek or was promptly translated into it.

The historical memory of the Syrians is an interesting indicator reflecting the existing ethnic, political, religious and (to a certain extent) economic contradictions that existed in Syrian society in the first half of the V century.

Acts of martyrs reflect the religious confrontation of Christianity and paganism. Many of them contain direct dialogues between Christians and pagans, where the heroes articulate arguments relevant for the period between the end of the IV century and the beginning of the V. The authors of martyrdom acts and sermons often used plots from martyrs' lives as a basis for moralizing or as a tool in religious controversy. Ethnic and political contradictions are reflected in Syrian relations with representatives of other peoples and states. It is possible to find anti-Jewish motives both in the above-mentioned texts and legends about the Syrian martyrs in Persia. According to these legends, the Jews persuaded the wife of King of Kings to persecute Christians. In the legend of the miracle from the relics of martyrs from Guria, Shimon

and Abibas, one can feel grievances regarding the permanent stay of Roman troops, which placed a heavy burden on the shoulders of residents.

Plots related to Christian Syrians in Persia reflect economic problems in Syrian historical memory. Among them is the history of the double military tax that existed during the Persian war with Rome. Such historical plots were intended to explain to Syrian artisans and merchants in Persia how they should interact with the local authorities. Thus, they had to emphasize loyalty to local authorities and avoid showing any gestures of reverence for Rome, which was in almost permanent war with Persia.

The last period of persecutions in Roman Syria occurred under the rule of Emperor Julian the Apostate, which had many specific features, and was not persecution in the classic sense since the victims Juvenin and Maximin were technically punished for the violation of military orders. Nevertheless, loads of folklore stories about Julian were reflected in *Julian Romance*, as well as in several Syrian hagiographic texts. In addition to efforts on restoring paganism, Julian was associated with the signing of unfavourable for Rome treaty with the Persians, according to which the Syrian city of Nisibis should have come under the rule of the latter. Thereby, in the historical memory of the Syrians, the image of Julian acquired an increasingly gloomy shade of not only an apostate and persecutor but also a bad ruler, whose actions changed the life of part of the Syrians for the worse.

To sum up, the historical memory of the Syrians, with all its ambiguity and inconsistencies, was a tool to explain (and often to justify) the current state of affairs. If necessary, it could give strong arguments in theological and political disputes and help to enhance ethnic and cultural identity.

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THE COMMUNICATIVE MODE OF MENTATIVE

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Summary

The way of speaking in judicial discourse is determined by a strictly established «ritual» and the role of each participant in the process, which cannot be changed. Therefore, each litigant is recommended to have a different style of speech behavior or a certain communicative mode. A speech style generates certain patterns – ways of speaking in court. So, the article is devoted to the specific features of the communicative mode of mentative in judicial discourse, as well as the changing patterns of speech behaviour of participants in the judicial process. During the process of investigation, the following research methods have been used: linguistic observation and analysis as well as cognitive method, pragmatic analysis method, critical discourse analysis method. These methods have allowed us to establish the organization of the discursive space of judicial discourse in diachrony as well as transformation of linguistic means in the mentative. Moreover, this study sheds light on the change of patterns of speech behaviour in the mentative communicative mode. To sum up, compared to the other communicative modes in the judicial narrative, the communicative mode of mentative can be considered the least changed.

Keywords: notion of mode, diachrony, judicial discourse, discursive space, linguistic observation, pragmatic analysis method, critical discourse analysis method, cognitive method, speech pattern.

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1. Introduction

Judicial discourse, as a particular ritualised form of power to determine the truth, combines methods of observation, qualification, classification, punishment as a manifestation of force. Judicial discourse, due to the importance of the role of the judge in the judicial process, keeps drawing the attention of many researchers. Using his authority, the judge makes a distinction and puts forward a final judgment:

«... establishes over individuals a visibility through which one differentiates them and judges them» (*Foucault, 1984: 197*).

Whilst noting the increased interest of researchers in the concept of discursive space, we emphasise that the issue of «formation» of judicial discursive space created, «...as a result of parties' judicial negotiation» (*Karyakin, 2009: 104*), remains unresolved. This allows us to talk about the **novelty** of this study and its **relevance**. With this in mind, we consider it necessary to focus on a more detailed characterisation of judicial discursive space and patterns of speech behaviour in judicial discursive space, taking into account their changes, which is the **aim** of this research. In order to achieve the aforementioned objective, the following **tasks** need to be solved:

- to establish patterns of speech behaviour in judicial discursive space and their transformation;
- to describe the linguistic features of judicial discourse and their transformation.

Troughout the process of investigation, the following research **methods** have been used: linguistic observation and analysis as well as cognitive method, pragmatic analysis method, critical discourse analysis method. These methods have allowed us to establish the organization of the discursive space of judicial discourse in diachrony as well as transformation of linguistic means in the mentative. Moreover, this study sheds light on the change of patterns of speech behaviour in the mentative communicative mode.

During a trial a judge creates a certain model of his discursive speech behaviour where he uses a coercive strategy expressed in specific linguistic means in order to achieve the optimal goal in the context of social interaction.

The discursive behaviour of the judge, as we believe, manifests itself in the mental communicative mode. Let us briefly elaborate on the characterisation of the concept.

2. The notion of mentative communicative mode

As a class of double-event discursive practices (*Tyupa, 2020*), linking qualitatively heterogeneous events – referential and communicative: the event of story and the event of storytelling, the narrative differs from the mentative, which can already be presented as «three-event», according to the terminology of A. B. Vdovichenko (*Vdovichenko, 2016: 334*). The mentative does not tell a story, but builds a discourse around the discourses outlined, interpreted by the narratives of the representative of the prosecution and the defense. It becomes therefore a meta-meta-communicative mental event, i.e. it is «...a thought about a thought, operating with versions, models, concepts, rather than things» (*Vdovichenko, 2016: 333*), a thought about a narrative. If a narrative sets a certain angle of view on an event, then the mentative builds its vision over the narrator's vision of the referential event, so «The referential content of mentative statements is not the event intrigue of life, but the procedural lawfulness of being» (*Tyupa, 2020*). Thus, the mental mode implies first of all an orientation towards the addressee, a change in the picture of the world in his mind. It is within the mental mode that coercive strategies and tactics can be implemented within the court, since speech activity in the mental mode is aimed at influencing in the first place and persuasion in the second, unlike in the narrative mode. The essence of mentative is «in its 'laying out', 'unfolding' for the Other – the super-experiential verification of meaning» (*Tyupa, 2020*). The judge acts as a bystander and makes a judgment based on the information presented in the provocative and inflective narratives in court. Thus, the mentative reinterprets already known information. At the same time, the information the judge receives is professionally elaborated by specialists. In this complex area of information, the judge has to navigate: to separate true facts from artificially transformed facts and make a decision. Furthermore, the function of the judge is also to exercise control over the whole process, positioning himself as a representative of the authority entrusted by the state with the power to administer justice. Finally, it must be mentioned that the judge also pronounces a valedictory speech to the jury, if they are present at the trial, in order for them to establish a verdict according to his instructions.

The discursive role of the judge in judicial discourse involves the following functions:

- 1) creating an authoritative image of the judge to organize an effective communicative process;
- 2) regulating the communication process in order to obtain full information from the agents of the process;
- 3) stimulating the communication process in the courtroom to obtain full information from the agents of the process;

- 4) ensuring alternation, i.e. rotating the speaker and the listener to ensure the principle of adversarial communication;
- 5) exercising message comprehension control and feedback to avoid communicative failure;
- 6) providing own opinion to focus the jury's attention;
- 7) formulating the judgment in such a way as to eliminate the possibility of its further challenge.

3. Organization of the discursive space of judicial discourse in diachrony

Let us trace the organization of the discursive space of judicial discourse in diachrony.

In 2008, the civil case C – 07 – 1783 Theodore Ervin v. Cindy Young was heard. Let us consider how a judge's discursive activity is organized in the mentative mode. By the way, let us note and amplify an interesting statement by A.J. Greimas about discursive competence: «...discursive activity relies on some discursive skill, which is no different from the skill of a shoemaker, for example. In other words, we should assume the existence of narrative competence if we want to explain the production and understanding of specific discourse texts...» (Greimas, 1983: 503). Let us assume that there is also mentative competence, which is necessary to be able, as we have already said, to navigate through the information provided, to make a judgement and to organize the activities of the participants in the judicial process.

The Clerk: The Honorable Christopher C. Henderson presiding. (creating an authoritative image of the judge).

The Court: Please be seated. (regulating the communication process).

The Court: As far as strikes, is each Defendant requesting four? (stimulating the communication process).

Mr. Stephenson: Yeah.

Mr. Ford: Yes, Your Honor.

The Court: Are there cross claims? (stimulating the communication process).

Mr. Ford: Yes.

The Court: Okay. (exercising message comprehension control and feedback).

The Court: I am not gonna ask about it. (providing own opinion).

The Court: Defense? They're basically the same questions – I mean. (ensuring alternation).

Mr. Ford: Yeah. (Theodore Ervin v. Cindy Young 2008).

Compare this trial with the famous Triangle Fire Trial 1911:

THE COURT: You may ask him a preliminary question. (creating an authoritative image of the judge, regulating the communication process).

MR. BOSTWICK: This is indictment No. 82,980.

THE COURT: I understand the application, made practically by both sides, is that the trial of this case be now adjourned until the first Monday in December. (stimulating the communication process).

MR. STEUER: That is correct.

MR. BOSTWICK: I don't understand that it is made on behalf of the People, if your Honor please.

THE COURT: Well, not opposed by the People. Application having been made by the defendant and not opposed by the People, in the case of the People against Isaac Harris and Max Blanck, the trial of it is now adjourned until the first Monday in December. (formulating the judgment).

THE COURT: Whereas in this case it is part of the matter to be established that there was a requirement that a certain thing should be done, it is not improper to call to the attention of the jury, during summation, at least, that that thing was not done. I think, perhaps, in the opening it might be omitted. (providing own opinion).

THE COURT: I think your criticism is perhaps well founded, Mr. Steuer. You may outline the theory of the People's case, Mr. Bostwick. (ensuring alternation).

To summarise, the mentative discursive competence of judges and the question-and-answer form of judicial discourse organisation have not changed. What has changed is the selection of linguistic means and the selection of patterns of the judge's speech behaviour, both of which will be discussed in the following subsections.

4. Transformation of linguistic means in the mentative

General processes concerning judicial discourse, intimation, dialogisation and simplification have certainly affected judicial discourse as well.

For example, in the trial of *Mahanoy Area School District v. B.L.* of 23 January 2021. B.L., a student at Mahanoy Area High School (MAHS), went through a competitive selection process but did not make the high school cheerleading team, making it to the minor league team only. Over the weekend, she posted a picture of herself on Snapchat, a mobile messaging app with attached photos and videos, accompanying it with a profane caption. Several students who saw the photo with the caption came up to the coach and expressed concern that the photo and caption were inappropriate. The coaches decided that B.L.'s snapshot violated team and school rules that B.L. had agreed to before joining the team, so she was suspended from the junior varsity team for one year. B.L. sued the school, arguing that (1) her suspension from the team violated the First Amendment; (2) that the school and team rules were excessively vague and discriminatory; and (3) that the rules were unconstitutional. Let's analyze the language used by US Supreme Court justices.

The linguistic means of intimation include the pronoun «I», discursive markers expressing the attitude of the speaker to the message expressed; lexical means denoting misunderstanding, which become a kind of emotional signals that do not carry a particular meaningful load, but become an effective way to attract the attention of listeners by bright speech form; softened form of the imperative, for example.

JUSTICE BREYER: And if swearing off campus did, I mean, my goodness, every school in the country would be doing nothing but punishing. It didn't hurt others as far as I'm aware, as far as I can see in the record (Mahanoy Area School District v. B.L. 2021: 12).

JUSTICE ALITO: I have no idea what it means to target the school. Now let me give you an example to make this more concrete. All right. So now, the student says exactly the same thing and he adds, «Our classmate, Johnny Jones' brother, is one of those blankety-blank baby killers» (Mahanoy Area School District v. B.L. 2021: 15-16).

Linguistic markers of dialogisation include colloquial vocabulary and colloquial syntax (parcellation, elliptical sentences). This generally indicates a simplification of the judicial discourse, which is becoming more dynamic.

JUSTICE ALITO: Well, I – I just don't understand what that means in concrete terms. I'll give you another example (Mahanoy Area School District v. B.L. 2021: 17).

JUSTICE SOTOMAYOR: Ms. Blatt, the problem that I have with Tinker is that I'm not sure it's any clearer a rule than any of the others that you're criticizing. Let me start with just this case. Can you punish a student for cursing at home – (Mahanoy Area School District v. B.L. 2021: 19).

JUSTICE SOTOMAYOR: – **we could quibble** with that, but **my point is, I'm told** by my law clerks, that among certain populations – a certain large percentage of the population, how much you **curse is a badge of honor**. That would surprise many parents (Mahanoy Area School District v. B.L. 2021: 20)

JUSTICE GORSUCH: Yeah. I – I – **I'd like to pick up** where Justice Kagan left off. I – I – I – **I'm confused** (Mahanoy Area School District v. B.L. 2021: 26).

JUSTICE GORSUCH: No, it's – **I understand** offense isn't enough. But, if there's a major disruption, that – that is enough? (Mahanoy Area School District v. B.L. 2021: 27).

JUSTICE GORSUCH: **Sure**. But, if the school thinks that **it's a – that – that the kids** are reasonably reacting to offensive political and religious speech, then it – then it can address that issue? (Mahanoy Area School District v. B.L. 2021: 28).

JUSTICE THOMAS: **Well, let me – let me ask – let me squeeze in** one other question real quick.

Compare this trial with the famous Triangle Fire Trial 1911. Even in small text fragments, the formality of the linguistic means can be noted as a style-forming characteristic of this judicial discourse. For example, the modal verb *may*, which conveys the judge's formal permission or prohibition of certain actions; the modal verb *will* as a means of expressing the communicator's confidence in what has been said; the abundance of imperative forms; the passive voice; sentences with the introductory *it*:

THE COURT: You **may open** the case, Mr. Bostwick (Triangle Fire Trial 1911: 10).

THE COURT: **Do not go** into that. **I may say** that I have ruled, Mr. Steuer, and discussion is unnecessary. You **may state** the theory of the People's case, Mr. Bostwick (Triangle Fire Trial 1911: 14).

THE COURT: For the purpose of expediting the case, Mr. Steuer, **it is conceivable that** during the recess hour you and Mr. Bostwick **may agree** upon certain things which **can be conceded**, which would be merely matters of formal proof. (Triangle Fire Trial 1911: 15).

THE COURT: It **will** shorten the case (Triangle Fire Trial 1911: 20).

THE COURT: **Read** it (Triangle Fire Trial 1911: 22).

THE COURT: **Proceed** (Triangle Fire Trial 1911: 46).

THE COURT: You **will** probably find printed explanations on that diagram, and **just study** it, Mr. Juror. **Just look** at it without comment (Triangle Fire Trial 1911: 117).

THE COURT: Objection sustained; **strike it out**. **I may say** now, because it **will save** time, that where **objection is taken** I intend to confine the evidence very strictly to that which I conceive to have by possibility probative value upon what I conceive to be the discuss in the case. (Triangle Fire Trial 1911: 118).

THE COURT: I **will** allow it (Triangle Fire Trial 1911: 120).

Note also the presence of the pronoun *we*, which is used more frequently than the first person singular pronoun compared to the first trial:

THE COURT: **We will designate** it by something that **is conceded** here on the exhibit (Triangle Fire Trial 1911: 128).

THE COURT: Now **we will proceed** (Triangle Fire Trial 1911: 129).

Participial constructions and participle phrases also indicate the formality of the style:

THE COURT: The witness indicates with his finger the partition **shown upon** the diagram immediately **adjoining** the entrance door to the ninth floor from the Greene street side. Is that right? (Triangle Fire Trial 1911: 128).

THE COURT: Being the partition running parallel with Washington place, it is at right angles with Greene Street and parallel with Washington place. Is that correct, Mr. Steuer, as a description? (Triangle Fire Trial 1911: 128).

Thus, a comparison of the factual material revealed that, compared to contemporary judge discourse, the judge discourse of the late nineteenth and early twentieth centuries makes active use of lexical, grammatical and stylistic means of manifesting formality.

5. Change of patterns of speech behaviour in the mentative

The main pattern of judge's discourse is the «I dominate» pattern of power, which is conditioned by the role of the judge – to administer justice by deciding civil and criminal cases. The judge, endowed with power, organizes and controls the actions of the participants in the process and assists them in exercising their rights and duties.

The following examples are taken from Case 14 – 185 *Mata v. Lynch* 2014 that was heard in the US Supreme Court and Triangle Fire Trial 1911.

So, only the judge has the right to ask questions in court of any participant:

JUSTICE KENNEDY: Can you explain why...? But why that is not a crime involving moral turpitude? ...why did the Fifth Circuit treat this, therefore, as a – as it requested review the sua sponte extension granted below? Why? Why would one that?

The judge may interrogate (1), clarify (2) and even interrupt any of the speakers (3):

(1) *JUSTICE SOTOMAYOR: Now, I've – I've forgotten, but is there a circuit split on that third on the sua sponte review? (Mata v. Lynch 2014).*

BY THE COURT: That is to say, the top of the surface of the table was two feet four and one-half inches above the floor level?

WITNESS: That's right, yes, sir (Triangle Fire Trial 1911).

(2) *JUSTICE KAGAN: So on that assumption, that would, as I understand it, give the Fifth Circuit something new to think about in – in addressing this question; is that right? (Mata v. Lynch 2014).*

BY THE COURT: What year? (Triangle Fire Trial 1911).

(3) *MR. FLEMING: Now, because they have not ...*

JUSTICE SCALIA: Which means there... there's no equitable tolling (Mata v. Lynch 2014).

BY THE COURT: So that the words "cutting tables" are not placed there from any actual knowledge of yours that cutting tables were there?

WITNESS: Excepting from the –

THE COURT: Yes or no?

THE WITNESS: (Continuing) No (Triangle Fire Trial 1911).

We note the following pattern as intrinsic to contemporary judicial discourse. In our view, it is due to the processes of dialogisation and intimidation which are thus reflected in the discourse. It is the pattern of «the judge is an ordinary person».

The judge as the dominant discursive person can joke in the courtroom, while the other participants are limited in doing so. Moreover, jokes on their part are considered inappropriate. Here are some examples from the case cited (the «judge is an ordinary person» pattern):

JUSTICE KENNEDY: You know the way to our hearts. (Laughter.)

JUSTICE KAGAN: He's definitely Justice Scalia. (Laughter.)

JUSTICE KAGAN: And we're not often confused. (Laughter.)

JUSTICE SCALIA: It's a good question, though. (Laughter.) (Mata v. Lynch 2014)

All of the above is the basis for the assertion: the judge's speech manifests power – it is a domination pattern that is basic and immutable.

6. Conclusions

Compared to the other communicative modes in the judicial narrative, the communicative mode of mentative can be considered the least changed, as the question-answer form of its organization and the presence of the «I dominate» pattern due to the role of the judge as the authority to administer justice has not changed. The linguistic means used in the mental mode have changed: compared to the contemporary judicial discourse, the judicial discourse of the late nineteenth and early twentieth centuries makes active use of lexical, grammatical and stylistic means of manifesting formality.

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INNOVATION, WORK, SOCIETY

AUSLEGUNG INTERNATIONALER VERTRÄGE: DIE ROLLE
DES "KONTEXTES" UND DER "WEITERE PRAXIS" DER PARTEIEN**Svitlana Karvatska**

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Annotation

Dieser Artikel zielt darauf ab, die weitere Praxis und nachfolgende Vereinbarungen als objektiven Beweis für das Verständnis von den Parteien der Bedeutung des Vertrags zu analysieren, das für seine Auslegung von wesentlicher Bedeutung ist. In Übereinstimmung mit den Regeln des Völkerrechts behalten Staaten erhebliche Befugnisse über die Auslegung und Anwendung von Verträgen. Durch ihr Handeln können Staaten die Unsicherheit von Vertragsbestimmungen zu einer Vielzahl von Fragen klären, einschließlich die Zuständigkeitsfragen oder des Vertragsinhalts. Solche Maßnahmen der Staaten in Form nachfolgender Vereinbarungen oder weiterer Praktiken sollten von Gerichten und Schiedsgerichten berücksichtigt werden, die für die Anwendung solcher internationaler Abkommen eingerichtet wurden.

Die Forschungsmethodik basiert auf einem komplexen Vorgehen zur Analyse von Objekt und Subjekt der Forschung, das interdisziplinäre Methoden umfasst: systemstrukturelle Methoden (auf deren Grundlage die Korrelation zwischen der weiteren Praxis von Staaten als Mittel zur Änderung des internationalen Vertrags und Das Prinzip "Pacta Sunt Servanda" war gerechtfertigt), die historische Methode (die es ermöglichte, die Entwicklung der Regelbildung für die Auslegung von Verträgen zu verfolgen) und die empirische Methode (die im Artikel zur Analyse der Praxis der Anwendung von Verträgen verwendet wurde). Außerdem wurden auch in diesem Artikel rechtliche Forschungsmethoden verwendet. Insbesondere wurde die formell-rechtliche Methode verwendet, um Verträge bei der Analyse der Rechtsprechung internationaler Justizbehörden, insbesondere des IGH und des EGMR, zu untersuchen. Die rechtsvergleichende Methode ermöglichte die Auslegungen von Verträgen mit anderen Rechtsauslegungen zu vergleichen.

Schlüsselwörter: Wiener Übereinkommen über das Recht der Verträge, Vertragsanwendung, Praxis, *pacta sunt servanda*, Gerichten und Schiedsgerichten

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1. Einleitung

Die Interpretationsregeln, die von dem Wiener Übereinkommen über das Recht der Verträge (WÜRV) festgelegt werden, sind bis heute relevant, jedoch erfordern sie eine Interpretation,

die der modernen Realität entspricht. Art. 31 von WÜRV enthält drei separate Grundsätze, die zu einer einzigen Auslegungsregel eines internationalen Vertrags zusammengefasst sind, so bildend die Grundlage für einen wirksamen Auslegungsmechanismus. Der Zweck von Art. 32 von WÜRV, der zusätzliche Auslegungsregeln festlegt, ist zu erklären, dass die Vorarbeiten bei der Auslegung eines völkerrechtlichen Vertrages grundsätzlich nur eine untergeordnete Rolle spielen. Die Umsetzung der Auslegungsfunktion ist möglich erst nach Anwendung von der allgemeinen Auslegungsregel, festgestellte von Art. 31 von WÜRV im Allgemeinen.

Das Wiener Übereinkommen über das Recht der Verträge von 1969 ist eine Kodifizierung der völkerrechtlichen Gewohnheitsregeln. Weitere Praxis wurde im Artikel (3) 31 WÜRV, der sich auf die weitere Praxis bei der Anwendung des Vertrags bezieht, um den für die Auslegung einer bestimmten Bestimmung erforderlichen Kontext zu klären, erwähnt. Was bedeutet diese Praxis aus Sicht des Rechts der Verträge? Handelt es sich um eine zu weit gefasste Auslegung der Normen der UN-Charta durch die Staaten oder ist es bereits eine andere Norm, die die ursprüngliche Norm ersetzt hat?

Die Völkerrechtskommission (ILC) fand vom 5 Mai bis 6 Juni und vom 7 Juli bis 8 August 2008 statt, bei der der Sonderberichterstatte Georg Nolte Berichte über weitere Praxis und nachfolgende Vereinbarungen von Staaten erstellte (*Report of the International Law Commission Sixtieth session (5 May-6 June and 7 July-8 August 2008)*).

Die Hauptthese von Georg Nolte lautete: „Die Verträge sind nicht nur trockene Pergamente. Sie sind Instrumente für die Versorgung der Stabilität von den Vertragspartnern und für die Erfüllung der Zwecke, die sie verkörpern. Sie können sich daher im Laufe der Zeit ändern und müssen sich an neue Situationen anpassen, sich entsprechend den sozialen Bedürfnissen der internationalen Gemeinschaft entwickeln. Die Verträge können manchmal obsolet werden.“ (*Report of the International Law Commission Sixtieth session (5 May-6 June and 7 July-8 August 2008, 383)*).

2. Die Präsentation des Hauptmaterials

Die Rolle des "Kontextes" für die Auslegung internationaler Verträge

Teil 2 des Artikels 31 von WÜRV definiert zwei Arten von Dokumenten, die als Bestandteile des "Kontextes" im Sinne von Teil 1 gelten und zur Bestimmung der allgemeinen Bedeutung der Vertragsbedingungen benutzt werden sollten. Wenn das Dokument Teil des tatsächlichen Vertrags ist, dient es als Objekt und nicht als Teil des "Kontextes" des Vertrags, anders gesagt als Interpretationsinstrument. Da der in Teil 2 genannte externe Kontext Ausdruck der Einstimmung der Parteien ist, sieht Teil 2 eine Methode zur authentischen Auslegung des Vertrags vor. In diesem Fall beistimmen alle Vertragsparteien den Erläuterungen zum Vertrag und damit dessen Auslegungen zu.

Teil 2 des Artikels 31 von WÜRV legt die Bedingungen fest, unter denen das Teil, das über den Vertrag hinausgeht, des Vertrags werden. Ein solches Dokument sollte von allen Vertragspartnern abgeschlossen werden. Fall es nur von einem oder mehreren abgeschlossen ist, müssen andere Parteien das akzeptieren. Paragraph (A) von Teil 2 von Artikel 31 von WÜRV definiert das Konzept der "Vertragsvereinbarungen" als "Kontext". Da der Begriff "Vereinbarung" breiter als der Begriff "Vertrag" ist, wie das Absatz (A) von Teil 1 von Artikel 2 definiert, erfasst es auch eine ungeschriebene Vereinbarung (*Villiger, 2009: Art 31*). In der allgemeinen vertraglichen Praxis erwerben diese "Vereinbarungen" jedoch häufig die Form vom Endakt, die Unterzeichnung von Protokollen, Klarstellungen, Kommentaren oder Erklärungsberichten, die von staatlichen Experte, die den Text des Vertrags

zusammensetzen, akzeptiert wurden. Solche Vereinbarungen, zum Beispiel ENMOD – Konvention (*Convention On The Prohibition of Military OR Any Other Hostile Use of Environmental Modification Techniques*) wurden gleichzeitig mit diesem Text anerkannt (*Dörr & Schmalenbach, 2018: 585*).

Bei den bilateralen Vereinbarungen schreiben die Vertragspartnern häufig Einzelheiten zur Auslegung oder Anwendung eines Vertrags in vereinbarten Protokollen oder durch Briefwechsel ein. Man kann als Beispiel des Briefwechsels für die Interpretation an Vertrag zwischen dem Vereinigten Königreich und den Vereinigten Staaten bezüglich den Flugdienst von 1977 benennen (*Aust, 2013: 211*).

Paragraph (b) von Teil 2 von Artikel 31 von WÜRV betrifft einseitige oder multilaterale „Vertragsdokumente“, die von allen anderen Vertragsparteien als solche akzeptiert werden. Dies können Behauptungen, die von einzelnen Parteien vor Abschluss eines Vertrages gemacht wurden oder die den Zustimmungsausdruck, um an den Vertrag gebunden zu sein, verfolgen, sein. Zu dieser Kategorie zählt man auch einseitige Auslegungsdeklarationen, die der Staat bei Vertragsabschluss vorlegt und die häufig externe Anzeichen von Vorbehalten gegenüber dem Vertrag besitzen. Als Beispiel nennt man die in der Europäischen Union übliche Praxis, Deklarationen von einem oder mehreren Mitgliedstaaten zu finalen Racheakten, die auf der Konferenz der Mitgliedstaaten geschlossen wurden und EU-Verträge ändern. Gleichzeitig werden die Texte solcher Deklarationen am Ende der Verhandlungen von anderen Mitgliedstaaten berücksichtigt. Da Paragraph (b) von Teil 2 von Artikel 31 keine formellen Anforderungen enthält, kann die Genehmigung von anderer Vertragspartei auch auf informelle Weise oder standardmäßig durchgeführt (*Dörr & Schmalenbach, 2018: 587*).

Teil 3 von Artikel 31 von WÜRV definiert zwei verschiedene Arten der Auslegung, deren gemeinsames Merkmal besteht darin, dass sie die Praxis der Vertragsparteien dieses Vertrags oder eines bestimmten Vertrags betreffen. Die Paragraphen (a) und (b) erlauben die Verwendung von Text bezüglich die Umsetzung des Vertrags von seinen Parteien. Paragraph (c) lenkt die Aufmerksamkeit des Interpretators auf andere Normen des Völkerrechts, unabhängig von einem bestimmten Vertrag, und führt damit einen systematischen Ansatz für den Prozess der Auslegung eines Vertrags ein.

Die "weitere Praxis" als Element der Auslegung des Vertrags

"Nachfolgende Vereinbarungen" (Paragraph (a) Teil 3 von WÜRV) ähneln den in Paragraph (a) von Teil 2 genannten Vereinbarungen. Es gibt nur zwei offensichtliche Unterschiede: 1) Vereinbarungen werden später abgeschlossen, anders gesagt, mit einem bestimmten Zeitfenster nach Vertragsschluss; 2) sie betreffen die Auslegung eines Vertrags oder die Anwendung seiner Bestimmungen und nicht einfach einen Vertrag.

Paragraph (a) von Teil 3 von WÜRV enthält keine formalen Anforderungen: Die nachfolgende Vereinbarungen dürfen nicht in Form eines Vertrags vorliegen, sondern müssen sie den Nachweis erbringen, dass die Parteien sie als Grundlage für die vereinbarte Auslegung akzeptiert haben (*Gardiner, 2015: 245*). Zum Beispiel verhandelte der Internationale Gerichtshof (IGH) über die *Kasikili / Sedudu Island Sache* bezüglich einen Grenzstreit zwischen lokalen Behörden, und kam zu dem Schluss, dass zwischen ihnen keine Vereinbarung gab, deshalb kann man Paragraph (a) von Teil 3 nicht anwenden (*Case concerning Kasikili/Sedudu Island (Botswana/Namibia, para 63)*). Wenn informelle Vereinbarungen oder Klarstellungen in den Anwendungsbereich von Paragraph (A) fallen, würde das auch die Existenz einer möglichen Überschneidung mit dem Konzept der "weiteren Praxis", die eine Vereinbarung der Parteien im Sinne von Absatz (B) bestimmt, bedeuten. Anders gesagt, je weniger formell die nachfolgende Vereinbarung ist, desto wichtiger ist die weitere Praxis.

Die "weitere Praxis" der Parteien (Paragraph (B) von Teil 3 von WÜRF) bei der Auslegung eines Vertrags erscheint als objektiver Beweis für das Verständnis der Auslegungsbedeutung und ist daher für seine Auslegung äußerst wichtig. Die "weitere Praxis" als Element der Auslegung des Vertrags ist in der Gerichtsbarkeit internationaler Gerichte häufig verwendet (*Case concerning Kasikili/Sedudu Island (Botswana/Namibia, paras 63, 50)*). Der Umfang dieser Praxis wurde auch von dem Internationalen Gerichtshof klar definiert, als IGH in der "*Land, Island and Maritime Frontier Dispute*" Sache entschied, dass es rechtswidrig sei, den Text bei der Betrachtung dieses Elements zu „weiterentwickeln“ (*Land, Island and Maritime Frontier Dispute (El Salvador v. Honduras: Nicaragua intervening, paras 351, 380)*). Die Gemäß der zu berücksichtigenden Elemente der Praxis unterscheiden sich in Übereinstimmung mit dem Paragraph (B) nach Vertragsgegenstand. Im Grunde sollte zur Umsetzung des Vertrages jede Handlung oder gar Untätigkeit der Parteien berücksichtigt werden. Wie bei der Entwicklung des Gewohnheitsrechts (Paragraph (B), Teil 1 von Artikel 38 des Statuts des Internationalen Gerichtshofs) umfasst der Begriff „Praxis“ jedes externe Verhalten eines Subjekts des Völkerrechts. Als Beispiel nennt man hier die Gerichtsverhandlung im Europäischen Gerichtshof für Menschenrechte der Frage, ob die Todesstrafe dem Artikel 3 der Konvention zum Schutze der Menschenrechte und Grundfreiheiten entspricht.

In seiner Entscheidung in *der Sache (Soerin v. United Kingdom von 1989)* stellte der Gerichtshof fest, dass Artikel 3 im Einklang mit Artikel 2 ausgelegt wurde und daher Artikel 3 kein allgemeines Verbot der Todesstrafe enthalten kann. Der Internationale Gerichtshof wies darauf hin, dass die „weitere Praxis“ in der nationalen Kriminalpolitik in Form der Abschaffung der Todesstrafe insgesamt als Begründung einer Vereinbarung von den Vertragsstaaten und damit als Beseitigung der textlichen Beschränkungen der evolutionären Auslegung von Artikel 3 angesehen werden kann (*Case of Soering v. the United Kingdom, para 103*).

Um im Einklang mit dem Paragraph (B) relevant zu sein, muss das Verhalten eines Staates eine Folge von Handlungen oder Behauptungen darstellen, da „Praxis“ nicht in einem einzigen Fall festgelegt werden kann. Der Interpretationswert dieser Praxis hängt immer davon ab, inwieweit sie kohärent, allgemein und konsistent ist. « Die "Praxis" der Parteien gemäß dem Paragraph (B) ist nur relevant, wenn sie für die Umsetzung eines Vertrags vorfällt. Die Vertragsparteien, deren „Praxis“ in Betracht gezogen wird, sollten so handeln, damit ihre „nächste Praxis“ von den vertraglichen Verpflichtungen motiviert wird. Wie die Völkerrechtskommission stellte fest, muss bei der Definition von „nachfolgenden Vereinbarungen“ oder „weiteren Praxis“ im Einklang mit dem Paragraph 3 von Artikel 31 die Determination unter anderem festgestellt werden, ob die Parteien ihre Meinung zur Auslegung des Vertrags durch eine Vereinbarung oder in der Praxis geäußert haben (*Dörr & Schmalenbach, 2018: 598*). So kann der Interpretator gemäß Paragraph (B) die Praxis der Parteien bei der "Nichtanwendung des Vertrages" berücksichtigen, anders gesagt, kann er Schlussfolgerungen daraus ziehen, dass die Parteien ihren Vertrag nicht angewendet haben, als die Bestimmungen von einem Vertrag angewendet werden konnten (*Gardiner, 2015: 262–264*). Dies war der Zugang von dem Internationalen Gerichtshof in seinem Gutachten (*Legality of the Threat or Use of Nuclear Weapons*), als der Gerichtshof auf die staatliche Praxis berief, um festzustellen, ob verschiedene Verträge über die Verwendung von Atomwaffen angewendet wurden konnten (*Legality of the Threat or Use of Nuclear Weapons (Request for Advisory Opinion)*).

In der Sache bezüglich der Abgrenzung der Seegrenzen im Indischen Ozean (*Somalia v. Kenya*) (2017) griff der IGH zur Auslegungsmethode in Übereinstimmung mit dem Völkergewohnheitsrecht zurück, das vom Art. 31 (3) (c) von WÜRV kodifiziert ist. Das ermöglicht, "alle relevanten Regeln des Völkerrechts zu berücksichtigen, die in der Beziehung zwischen den

Parteien anwendbar sind". Da sowohl Kenia als auch Somalia Vertragsparteien des Seerechts-übereinkommens der Vereinten Nationen (UNCLOS) sind, stellt der Gerichtshof fest, dass "die Abgrenzung des Festlandssockels zwischen Staaten mit gegenüberliegenden oder angrenzenden Küsten verwirklicht sich auf der Grundlage des Völkerrechts gemäß Artikel 38 von WÜRV." Nach Ansicht vom Internationalen Gerichtshof wird diese Auslegung durch die "weitere Praxis" (Artikel 31(3) (b) von WÜRV) von den Parteien der Verhandlungen im Jahr 2014, noch bevor es Empfehlungen zur Abgrenzung gab, bestätigt. Nach Meinung von der Internationalen Gerichtshof, wenn Kenia wirklich geglaubt hätte, dass eine Abgrenzung nur nach der Abgrenzung möglich wäre, würde sie diese Verhandlungen nicht aufgenommen (*Maritime Delimitation in the Indian Ocean (Somalia v. Kenya)*, 2017, paras 99, 127).

"Weitere Praxis" der Parteien ist für die Auslegung des Vertrages nur relevant, wenn sie "die Zustimmung der Parteien bestimmt". Die Festlegung dieser subjektiven Anforderung unterstreicht die Bedeutung der weiteren Praxis als Instrument für eine authentische Auslegung. Die Praxis muss von allen Parteien anerkannt werden, auch wenn nur wenige Parteien daran teilgenommen haben. Daher lehnte Europäischer Gerichtshof für Menschenrechte im "*Söring Sache*" Urteil die Auslegung von Art. 3 der Europäischen Menschenrechtskonvention wegen der Entwicklung einer nationalen Politik, die die Todesstrafe verbietet, da die Vertragsstaaten der Konvention das Protokoll Nr. 6 angenommen haben, das die Abschaffung der Todesstrafe in Friedenszeit stipulierte. Nach der Entscheidung des Gerichtshofs ist Art. 3 kann nicht als allgemeines Verbot der Todesstrafe ausgelegt werden (*Case of Soering v. the United Kingdom*, 1989, paras 103,161).

Die "weitere Praxis" der Vertragsparteien, die zwischen den Parteien keine Verabredung setzt, kann als zusätzliches Mittel zur Auslegung gemäß Art. 32 angebracht sein. Solche Meinung wurde von der internationalen Praxis anerkannt (zum Beispiel in der Entscheidung des Internationalen Gerichtshofs in der *Kasikili/Sedudu Sache*) (*Case concerning Kasikili/Sedudu Island (Botswana/Namibia)*, paras 79–80).

Entsprechende Regeln des Völkerrechts als Element der allgemeinen Auslegungsregel (Paragraph (c) von Art. 31 von WÜRV)

Paragraph (c) von Art. 31 von WÜRV enthält noch ein Element der allgemeinen Auslegungsregel, die einschlägigen Regeln des Völkerrechts. Der Paragraph bezieht sich auf das internationale Rechtssystem als Teil des Kontexts jedes nach dem Völkerrecht geschlossenen Vertrags und legt damit die Grundlage für einen systematischen Ansatz bei der Auslegung von Verträgen. Der Internationale Gerichtshof hat es in seinen Gutachten (*Legal Consequences for States of the Continued Presence of South Africa in Namibia*) so formuliert: Ein internationales Dokument muss im Rahmen des gesamten zum Zeitpunkt der Auslegung bestehenden Rechtssystems ausgelegt und angewendet werden. Die in Paragraph (c) dargelegte Regel basiert auf dem Grundsatz von Treu und Glauben, da nach diesem Grundsatz jede Vertragspartei sollte als die Partie, die beabsichtigt, ihre vertragliche Verpflichtung im Einklang mit ihren anderen völkerrechtlichen Verpflichtungen, solche betrachtet sein.

Die Vertragsbedingungen können unter Berücksichtigung der Bestimmungen eines anderen Vertrags ausgelegt werden, insbesondere wenn dieser Vertrag einen ähnlichen Gegenstand hat oder dieselbe Rechtslage betrifft. Beispielsweise verwendet der Europäische Gerichtshof für Menschenrechte für die Auslegung der Europäischen Menschenrechtskonvention solche menschenrechtlichen Verträge wie Internationalen Pakt über bürgerliche und politische Rechte, die UN-Antifolterkonvention, die UN-Kinderrechtskonvention und die Auslegung dieser Dokumente von den zuständigen Behörden. Der Internationale Gerichtshof in der *Rantsev Sache*, geltend für Paragraph 3 von Art. 31 von WÜRV, verwendete das UN-Protokoll und

das Übereinkommen des Europarates zur Bekämpfung des Menschenhandels, um festzustellen, dass der Menschenhandel unter Art. 4 Europäische Konvention fällt (*Case of Rantsev v. Cyprus and Russia, Paras 273–282*). In der *Hassan v. Vereinigtes Königreich Sache* die Gründe für zulässige Inhaftierung, die Art. 5 der Europäischen Menschenrechtskonvention stipulierte, wurden unter Berücksichtigung der Genfer Konventionen zum Schutz der Kriegsoffer ausgelegt (*Case of Hassan v United Kingdom, paras 102–111*).

Allgemeine Regeln des Völkergewohnheitsrechts können als Grundlage für die Bestimmungen eines Vertrags dienen, deswegen beinhalten sie wichtige Leitlinien für die Auslegung vom Vertrag. Zum Beispiel betonte der Internationale Gerichtshof in der *Ölplattform Sache*, dass „die Anwendung der einschlägigen Regeln des Völkerrechts in Bezug auf dieses Thema ein wesentlicher Bestandteil der Auslegungsaufgabe ist“ (*Case concerning Oil Platforms (Islamic Republic of Iran v. United States of America), 2003: P 161, paras 40–41*).

Wenn eine auszulegende Vertragsbestimmung die Kompetenz oder die Prozedur internationaler Rechtsinstitutionen betrifft, kann die Auslegung eine Anweisung auf ähnliche Bestimmungen anderer Vertragsordnungen in ihrer Anwendung von zuständigen Behörden erfordern. In solchen Fällen spielen eine größere Rolle die verwendete als Auslegungsmittel Praxis als externe (parallele) „Regeln“ (*Dörr & Schmalenbach: 2018, 599*). Insbesondere in der *Bayatyan Sache* der Europäischen Gerichtshof für Menschenrechte interpretierte Art. 9 der Europäischen Sicherheitskonvention über die Absage von dem Militärdienst als einer der Umstände, die in der nationalen Gesetzgebung der europäischen Staaten vorherrschen (*Case of Bayatyan v. Armenia, para 105*).

3. Schlussfolgerungen

Weitere Praxis und nachfolgende Vereinbarungen sind ein objektiver Beweis des Verstehens von den Parteien die Bedeutung einer Vertragsbestimmung (*Karvatska: 2019, 118–131*). In Übereinstimmung mit den Völkerrechtsnormen behalten die Staaten bedeutende Befugnisse bei der Auslegung und Anwendung der Verträge. Durch ihre Handlungen können Staaten die Unklarheit der Bestimmungen eines Vertrags zu einem großen Fragenkreis klären, einschließlich Fragen der Zuständigkeit und des Vertragsinhalts. In Übereinstimmung mit den Völkerrechtsnormen sollten solche Handlungen von Staaten in Form der folgenden Vereinbarungen oder der nachfolgenden Praxis von den Gerichten und Schiedsgerichten berücksichtigt werden, die für die Anwendung solcher internationaleren Abkommen gegründet wurden.

Teil 2 von Art. 31 von WÜRV definiert die Rolle des „Kontextes“ für die Auslegung der Verträge. Die "nächste Praxis" der Parteien bei der Auslegung eines Vertrags ist ein objektiver Beweis für das Verständnis der Vertragsbedeutung. Deshalb ist sie äußerst wichtig für die Vertragsauslegung.

Die Analyse der Praxis der Anwendung von den Verträgen lautet: eine Änderung des Vertrags von der weiteren Praxis der Staaten kann entweder zu einer vollständigen Ersetzung der Vertragsnorm, zu ihrer Hinzufügung durch ein wichtiges neues Element (das Vorhandensein dieses Elements ermöglicht diese Operation von einer einfachen Klärung des Inhalts der Norm unterscheiden) oder zur "wortlose" Beendigung der Wirkung der Normen.

Die Frage der Korrelation zwischen der weiteren Praxis von Staaten als Mittel zur Änderung eines Vertrags und dem *Pacta Sunt Servanda* Prinzip ist kompliziert. Dieser Grundsatz schließt sich Vertragsänderungen mit Zustimmung und durch den Willen der Staaten nicht aus. Dieses Prinzip definiert gar nicht, was der Vertrag darstellt wie Verträge geändert, interpretiert und beendet werden sollten. Anders gesagt, die Verträge müssen natürlich eingehalten werden,

aber dies schließt ihre Änderung im Laufe der Zeit nicht aus. Wenn der Vertrag von der weiteren Praxis von Staaten geändert wird, verstoßen die Staaten gegen den Vertrag aus formaler Sicht das *Pacta Sunt Servanda* Prinzip in den ersten Phasen der Entstehung dieser Praxis. Da diese Praxis jedoch von einer zunehmenden Anzahl von Staaten aktiv angewendet oder anerkannt wird, wird das, was zuvor ein Verstoß war, als eine akzeptierte Verhaltensregel wahrgenommen.

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SUPREME COUNCIL OF JUSTICE AND RELATED BODIES IN FOREIGN COUNTRIES: TYPOLOGICAL CLASSIFICATION

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Summary

In the modern context of transformations, the realm of social relations that determines the fundamentals of the functioning of the judiciary, particularly in recent decades, increasingly needs constitutional consolidation. This essentially concerns the bodies similar to the Supreme Council of Justice of Ukraine. The national legislation of Ukraine has well-defined provisions on the procedure of staffing, quantitative and organizational constitution of the Supreme Council of Justice in Ukraine. However, the world constitutional practice differently defines the status of bodies similar to the Supreme Council of Justice. Thus, the availability of bodies equal to the Supreme Council of Justice of Ukraine provides for an option of their grouping depending on the place or role, which the above bodies assume in the system of public authorities. That kind of classification aims to outline the general and specific features characterizing the legal status of the abovementioned bodies that will facilitate involving foreign practices into the national legislation of Ukraine and contribute to its improvement in terms of the functioning of the Supreme Council of Justice of Ukraine. Research methodology relies on using a set of methods that assist in achieving the scientific purpose. Such a set primarily consists of dialectical and system-structural methods, formal logic (analysis, synthesis, generalization) and comparative-legal one, which make it possible to handle the texts of statutory acts and doctrinal sources and help forward formulating the author's standpoint meeting the research purpose.

Keywords: judiciary, constitutional-legal status, judicial councils, classification features, European integration.

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1. Introduction

The constitutional consolidation of bodies accountable for ensuring the independence of the judiciary and self-reliance of judges when exercising their functional responsibilities and controlling the judicial field became peculiar to constitutions after the Second World War and the dissolution of the Soviet bloc. The vast majority of countries, which adopted constitutions in these historical periods, envisaged the establishment of the supreme magistrate bodies (of justice, the judiciary, judicial councils etc.). To settle the issue of judicial career management and courts administration, independent judicial bodies were formed (Albania, Armenia, Belgium, Brazil, Bulgaria, Denmark, Greece, Spain, Italy, Kazakhstan, Lithuania, Moldova, Poland, Portugal, Romania, USA, Turkey, France, Croatia, Sweden and others).

It seems impossible to study peculiarities of the status of all judicial councils within one scientific article because their number is huge in countries across the world. Therefore, there is a need to classify these bodies through specifying typological features that somewhat facilitates their further study and permits highlighting individual components of their legal status. Every judicial council emerged due to developing an inherent system that has deep roots in historical,

cultural and social terms; nevertheless, all relevant councils have mutual challenges and follow general principles.

2. Southern European and Northern European typological models of judicial councils

One of the most prevalent classifications prescribes conventional division of judicial councils, which were formed in European countries, and includes two organizational models: northern (Sweden, Denmark, Norway) and southern (France, Italy, Spain, Portugal) (*Mikuli P. 2010: 110, 125*). Fundamental characteristics of the mentioned typological models of judicial councils, which are created and function in the modern Europe, are as follows: in terms of the Northern European Model, competencies of judicial councils include addressing organizational tasks concerning financing and logistical support of the judicial system; the Southern European Model also involves the participation of judicial councils in the selection, training, transfer of judges and bringing them to disciplinary responsibility (*Voermans et al., 2003*).

In general, the Southern European Model consolidates the constitutional status of judicial councils and the availability of a defining function – ensuring the independence of the judiciary (for instance, the provision of recommendations on judges' appointment (magistrates), the exercise of disciplinary powers towards judges (magistrates)). Therefore, the Northern European Model states that judicial councils have different powers in administration (supervision of court registration authorities, control over the volume of cases and their list, contribution to balanced legislation in the judiciary, etc.) and court management (for instance, housing, automation, recruitment, training etc.) and, in addition, play a crucial role in court budgeting (engagement in the budget generation, distribution, supervision and expenditure control etc.).

The key differentiation between the mentioned typological models of judicial councils is the historical background of establishment in different European regions. A reason for establishing judicial councils in the countries of Southern Europe was the need to guarantee the independence of the judiciary in the period after the Second World War and the overthrow of authoritarian governments. One of the means of ensuring the independence of judicial councils was the consolidation of their constitutional status (France, Italy, Portugal).

Indeed, judicial councils in Northern Europe, particularly in Denmark or Sweden, were established exclusively to accomplish the goals of improved administrative management and control over judicial budget and personnel. Sweden was the first country that created the Judiciary Council according to the 1975 Northern European Model. It is worth mentioning that Sweden has a unique system of public administration which is characterized by the constitutional tradition of functional decentralized delegation of powers from government ministries to independent administrative agencies.

At the same time, some European and American researchers stress that the basic powers of the relevant judicial councils rely on their a priori functions of the protection of the judiciary from political effects. Moreover, it is said that judicial councils “are created to isolate the functions of appointment, promotion and discipline of judges from the process of party policy through maintaining a particular level of accountability. Judicial councils are between contradictory edges: on the one hand – to permit judges to take the lead and, on the other hand– overall political control over appointments, job promotion and discipline” (*Ortiz, 2017; Garoupa et al., 2009*).

Ukrainian scientist S.V. Prylutskyi, who also distinguishes the Southern European and Northern European Models, has a similar standpoint towards the classification of bodies relevant to the Supreme Council of Justice of Ukraine. In his view, in many European countries,

there is a tendency to borrow both models when creating/reforming judicial councils (justice councils) to accomplish a double goal: to protect judges from any intervention in their independence through appointment, job promotion or dismissal, and to meet demanding requirements of modern judicial administration. The above models can be called mixed (*Prylutskyi, 2017: 11*).

3. The European model of judicial councils

The research by European scientists M. Bobek & D. Kosař, who have considered the formation of judicial councils in Central and East Europe, seems to be interesting. The authors have proposed “a European model” of judicial councils and put forward six key requirements for them. Thus, a judicial council shall have a constitutional status; a judicial council shall comprise at least 50% of the members and they shall be appointed by colleagues, i.e. other judges; a judicial council shall take final decisions on relevant powers, not only have advisory capacity; a judicial council shall have considerable authority on all issues concerning judge career, including selection, appointment, promotion, transfer, dismissal and disciplinary responsibility; a judicial council shall be headed by the president or head of the High (Supreme) Court; heads of the courts and their deputies are allowed to become a member of a judicial council. In the authors’ opinion, the five models are widely used in Europe: the model of the Ministry of Justice, the judicial council model, the courts service model, hybrid models, and the socialist model.

The model of the Ministry of Justice is the most ancient. It states the Ministry of Justice plays a pivotal role both in judges’ appointment and promotion and court administration and judicial procedure. This model is used in Germany, Austria, Czech, Finland and other countries. At the same time, it is misguided to believe that solely the Ministry of Justice deals with the matters of judges (appointment, promotion, dismissal, administration of courts etc.). Based on the model, such a statutory role is fulfilled by the President, parliament, judicial panels, ombudsman and others.

The judicial council model is a model which has an independent intermediary, i.e. a body that is between the judiciary and politically responsible persons in the executive branch of government and parliament. A judicial council is vested with considerable authority to appoint and promote judges and/or carry out disciplinary proceedings against judges. Moreover, judicial councils also can be granted authority to manage courts, approve courts’ budgets; however, this authority is minor towards authority over judges. There is that sort of model in Belgium, Bulgaria, France, Hungary, Poland, Portugal, Romania, Slovakia, Slovenia, and Spain. In addition, the authors indicate that not all judicial councils of the beforementioned countries of this model meet criteria of the “European model”.

The model of courts service, compared to the above one, provides for the existence of an independent body that has powers in the management realm (supervision of judicial machinery, workload of judges, balanced distribution of cases and their consideration), court management (housing, automation, recruitment, training, etc.) and court budgeting. As opposed to judicial councils, court services play a limited role in the appointment and job promotion of judges (career) and don’t perform disciplinary powers towards judges. Sometimes independent bodies – such as operating commissions for the appointment of judges to positions separate from the judicial service – are granted these powers. This model is available in Denmark, Ireland, Norway and Sweden.

The mentioned model comprises the Advisory Council of the Swedish National Courts Administration, which is a state body under the Government and deals with a service

organization for Swedish courts, was founded in 1975. The jurisdiction of the court administration embraces overall coordination and general administrative issues under the framework of the Swedish judiciary system that involves maintaining courts, building leases, providing auditing services, matters of personnel management, education and the provision of information services, preparation of rules, recommendations and instructions. In particular, the National Courts Administration is responsible for the effective and relevant distribution of resources, assistance in extending cooperation both in the context of the Swedish judiciary system and between courts and other state bodies.

The research authors consider hybrid models as a model combining various components of the previous three in such a way that it is distinctly different from each of them. For instance, in the countries like England, Wales, Estonia, Hungary (since 2011), Iceland, Switzerland and in some European mini-states, these models contain sufficiently specific features that it is impossible to generalize them, and some common features cannot be distinguished. In one instance, there are judicial appointments commission engaged in selecting judges for a certain level of the judicial system, and the rest of judicial administration is entrusted to other body (England and Wales); in another case, in a country, there is established a judicial council which divides powers over judicial administration with other national-level body (Hungary, since 2011).

The socialist model of judicial administration provides for powers over judges and the judicial system as a whole in three institutions – General Prosecutor (prosecutor), Supreme Court and heads of courts – which also were controlled by a communist party. In other words, the communist party exercised control over the courts. The model's peculiarities varied depending on a specific country. The socialist model of judicial administration has no longer existed in Europe (Bobek *et al.*, 2013).

4. Other approaches to the classification of court councils

By paying attention to the global level to find an alternative to the European model, there is an even greater variety of models of court administration. The European model of building judicial administration bodies is widespread in Latin America, due in part to the pressure from international actors, but also due to the influence of Latin Europe exercised in these countries. The Ministry of Justice models can be found in Canada or Japan. Socialist models of court administration still exist in China, Cuba, North Korea, Vietnam, and many ex-USSR countries. In addition to the five models of court administration one can find in Europe, specific models are available in many countries of the Middle East where religious institutions play a crucial role in judicial administration. In Africa, models of court administration are even more diverse, as they often combine colonial legacies with local specifics. From the European perspective, even the United States' model of court administration that puts a great emphasis on the democratic process – in particular, the election of judges– represents a distinct model that does not have an equivalent in Europe (Bobek *et al.*, 2013).

As for the classification of bodies like the Supreme Council of Justice, depending on their personnel, they can be divided in those which consist of judges; which have mixed personnel; in which the majority is represented by courts. According to the structural criterion along with a mono-system organization of bodies of a judicial community, there are marked their poly-systemic and sophisticated systems that demonstrate a higher level of the specialization of bodies, the availability of several higher bodies. The need for structuring emerges in federal states as a dependence on the state-legal and administrative structure.

Summing up the abovesaid, one can establish a direct dependence of the typological variety of the mentioned bodies on such conditions as the division of managerial and organizational powers between different judicial actors, essence and scope of tasks they are vested with and a country's historical-legal, political-economic and sociocultural context, its administrative structure. In addition, such bodies can have the features of state ones or don't have them in some cases; however, they are considered as an element of organizational-managerial activity in the judicial branch. By studying the genesis of the legal status of bodies that carry out judicial administration in foreign countries, one can find that the organizational system of the Supreme Council of Justice in Ukraine fully meets the European approach to building such bodies in countries with consolidated democracies, including France, Italy and Spain. In view of considerable differences in the judicial systems of European countries, Ukraine should use their experience, taking into account historical, national, mental features and traditions, model similarities of judicial systems, practical effects of the implemented reforms (Nor et al., 2015).

5. Conclusions

Consequently, having regard to the abovementioned characteristics, the author notes the Supreme Council of Justice is an independent type which is characterized by the available inter-type features. Thus, it stands to reason that historical background has become a basis for the development of statutory acts, which regulate the legal relations related to the status of the Supreme Council of Justice of Ukraine and relevant bodies of foreign countries, prevailing at the time of writing this article.

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LEGAL FRAMEWORK FOR STRATEGIC AND CRITICAL INFRASTRUCTURE

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Summary

Causing damage to objects of strategic and critical infrastructure affects the security of the state. Economic and environmental consequences may result in human casualties, financial losses, etc. Accordingly, proper protection of objects of strategic and critical infrastructure at the legislative level is of great importance.

There is a need to identify objects of strategic and critical infrastructure and to address issues related to the protection of their infrastructures. Legislation must contain comprehensive definition of objects of strategic and critical infrastructure. This definition must include criteria and procedure of inclusion of facilities in the critical and strategic infrastructure.

In order to ensure the protection of critical infrastructure and facilities of strategic importance to the economy and security of the state it is necessary to create legal basis for its comprehensive protection against external encroachment and implement foreign experience in this sphere. There is a need to create legislation and methodological materials, taking into account foreign experience.

Keywords: strategic enterprises, critical infrastructure, state security, privatization.

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1. Introduction

Nowadays there is the need to create an appropriate infrastructure, the operation of which would be aimed at the smooth operation of enterprises, institutions and organizations that are classified as objects of critical or strategic importance for the economy and security of the state. However, in the presence of imperfect legislation, there is a danger of omission of enterprises that are truly critical and of strategic importance for the security of the state from the list of objects of critical and strategic infrastructure. Accordingly, proper regulation is not the last among the issues that require legal analysis and research.

So, taking into account the aforesaid, the purpose of this article is to analyze legal regulation of objects of critical and strategic infrastructure in Ukraine and make recommendations for improving existing legislature.

2. Protection of strategic enterprises

In the United States, critical infrastructure includes systems, networks and individual facilities, the disruption or destruction of which can cause huge or even irreversible negative consequences for the economy, welfare and health of the population, the stable course of political processes (*Department of Justice or the USA, 2020*).

The concept of critical infrastructure protection is also implemented in such developed countries as Canada, Australia, Great Britain. It should be noted that in most of them the

identification of objects of critical infrastructure is carried out in accordance with the approved methods for assessing threats and risks to its sustainable operation.

In the National Security Strategy of Ukraine, ensuring information security, cyber security and security of information resources and critical infrastructure are identified as priorities of the state (*Prezydent Ukrainy, 2015*).

However, in the legislation of Ukraine the protection of objects, which according to the world practice belong to the sector of critical infrastructure, is regulated by numerous normative-legal acts, which are predominantly of a departmental nature (*Ministerstvo ekonomichnogo rozvytku Ukrainy, 2015*).

For further development of the protection system, O. Melnychuk proposed the development of legal, organizational, methodological, technological and other tools for the protection of critical infrastructure, depending on the level of risks, components of the infrastructure: – element – the smallest component of the infrastructure that can be identified (wagon); – object – functionally related collection of elements (rolling stock); – segment – a set of objects (railway station); – sector – a group of segments (a separate subdivision of the railway); – infrastructure – a complete set of similar sectors and processes (railway infrastructure). It is also advisable to take into account objects of related infrastructures (*Melnychuk, 2019: 14*).

3. Objects of critical and strategic infrastructures and features of their status

To the objects of critical infrastructure in Ukraine belong enterprises and institutions (regardless of ownership) of industries, such as energy, chemical industry, transport, banks, information technology and telecommunications (electronic communications), food industry, health industry, which are strategically important for the functioning of the economy and security of the state, society and population, the decommissioning or destruction of which may affect national security and defense, the environment, lead to significant material and financial damage, human casualties (*Kabinet Ministriv Ukrainy, 2016*).

The Law of Ukraine “On Basic Principles of Ensuring Cyber Security of Ukraine” uses the term “objects of infrastructure of critical importance”, defining them as legal entities which activities are directly related to technological processes and / or provision of services of great importance to the economy and industry, functioning of society and security of the population, disruption of which may have a negative impact on the national security and defense of Ukraine, the environment, cause damage to property and / or pose a threat to human life and health. This Law also provides an interrelated definition of the object of critical information infrastructure: a communication or technological system of object of critical infrastructure, the cyber attack of which will directly affect the sustainable operation of such object of critical infrastructure. This Law also provides an interrelated definition of the object of critical information infrastructure (*Verkhovna Rada Ukrainy, 2017*).

The list of state-owned objects of strategic importance for the economy and security of the state is approved by the Resolution of the Cabinet of Ministers of Ukraine of March 4, 2015 № 83. This Resolution provides for the approval of the list of state-owned objects of strategic importance for the economy and security of the state. Ministries, other subjects of state property management have to systematically review the list approved by this Resolution and submit, if necessary, by July 10 of each year to the Ministry of Economic Development and Trade substantiated proposals for each object. The Cabinet of Ministers of Ukraine makes a decision to amend the list. The list includes the following objects: enterprises of the defense industry; oil companies, enterprises of energy, metallurgical, chemical, agro-industrial complexes; objects

of transport industry; enterprises providing placement and storage of material assets of the state reserve; machine-building, food industry, aviation, rocket and space industries; scientific, hydrometeorological activities; spheres of standardization, metrology and certification; financial and budgetary sphere and printing industry (*Kabinet Ministriv Ukrainy, 2015*).

Objects of state property that are of strategic importance for the economy and security of the state include economic entities of the public sector of the economy (hereinafter – enterprises) that meet one or more criteria defined in the Resolution of the Cabinet of Ministers of Ukraine “On determining the criteria for classification of state property to those that are of strategic importance for the economy and security of the state” of November 3, 2010.

An enterprise is of strategic importance for the economy and security of the state if the share of its products in the market of relevant goods in Ukraine is not less than 20 percent (*Kabinet Ministriv Ukrainy, 2010*).

Peculiarities of the status of strategic objects are defined by the Law of Ukraine of 21.09.2006 № 185-V "On management of state property", according to which the Cabinet of Ministers of Ukraine:

- approves the decisions of the authorized governing bodies on the creation, reorganization and liquidation of public sector enterprises that are of strategic importance for the economy and security of the state;
- approves the list of state-owned objects of strategic importance for the economy and security of the state (paragraphs 22 and 24 of the second part of Article 5 of the Law);
- creates economic organizations on the basis of objects of state property that are of strategic importance for the economy and security of the state (part 8 of article 11 of the Law);
- votes on an additional issue of shares by a representative of the state at a general meeting of economic organizations of strategic importance for the economy and security of the state, in the authorized capital of which the corporate rights of the state exceed 10 percent (*Verkhovna Rada Ukrainy, 2006*).

The list of state-owned objects of strategic importance for the economy and security of the state is approved by the Cabinet of Ministers of Ukraine in accordance with the Law of Ukraine "On Management of State-Owned Objects".

4. Subjects of strategic importance

Strategic entities include public sector entities that meet one or more criteria. Entities of the public sector of the economy are entities operating on the basis of state ownership, as well as entities which state share in the authorized capital exceeds fifty percent, is a value that provides the state with a decisive influence on economic activities of these entities (*Verkhovna Rada Ukrainy, 2003*).

In accordance with the requirements of the Procedure for submission and consideration of proposals for the formation of the list of state property that is of strategic importance for the economy and security of the state, proposals for inclusion (exclusion) of objects in the list are submitted by the authorized management body signed by its head with the relevant justifications for each enterprise separately. Justifications for inclusion (exclusion) of objects in the list should contain information of the authorized management body on compliance (non-compliance) of enterprises with the criteria and information on the impact of enterprises on the activities of enterprises of the relevant economy, industry as a whole and enterprises of other sectors. The procedure defines the list of documents provided by the Ministry of Economic Development to the authorized management body to confirm the compliance (non-compliance)

of the enterprise with the criteria. In case of non-compliance of the received proposals with the requirements of the Procedure, the Ministry of Economic Development notifies the authorized management body in writing within a month of the refusal to make the proposed changes to the list (*Ministerstvo ekonomiky Ukrainy, 2010*).

Maintaining the vital functions of society, protection of basic needs of its members and creation of a sense of security in them is a basic condition for ensuring national sustainability. Therefore, ensuring the security and sustainability of objects of critical infrastructure is defined as a basic element of ensuring national sustainability (*Sukhodolia, 2015: 51*).

Taking into account the information set forth in the aforesaid normative legal acts, it is not the obligation of enterprises to provide reliable information that can be traced, but rather the procedural process of proving on their part that they are strategically important for the state, which often does not correspond to the interests of the managers of these facilities.

5. Conclusions

Although objects of critical and strategic infrastructure are in the same plane of perception, their legal regulation is carried out by various legislative norms in Ukraine. Therefore, there is a need to create a comprehensive definition of objects of strategic and critical infrastructure. This definition must include criteria and procedure of inclusion of facilities in the critical and strategic infrastructure. Legislation should guarantee the safe operation of objects of critical infrastructure.

For safe operation of objects of critical infrastructure it is necessary: to create legal basis for comprehensive protection against encroachments of different nature; provide for legal liability as a measure for a quick response to the influence of an illegal nature; implement international experience in this area.

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METHODOLOGY OF RESEARCH OF TEMPORAL EVALUATION NOTIONS IN CIVIL LAW

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Summary

The article is devoted to the formation of the methodology of temporal evaluation concepts in civil law. In preparing the article, the approaches to the understanding of the concepts of the method, the methodology have been considered, as well as structural elements of the latter have been analyzed. It has been proved that the basis for the methodology of legal science is philosophical, general scientific and special methods. Based on the general classification of the methods in legal science, the system of methods, which is used to study temporal evaluative concepts in civil law has been proposed. Each of the applied research methods has been described and the examples of their application in the study of various aspects of temporal valuation concepts in civil law have been provided. Particular attention has been paid to the dialectical method, which is the basic one. It has been stated that the methodology is not limited to the methods of scientific knowledge, but has its own integrative patterns of development.

Keywords: method, methodology, temporal evaluation concepts, civil law, research, scientific knowledge.

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1. Introduction

The term “evaluation concept” is the achievement of the science of legal theory, but it has become widespread in various areas of law under modern conditions, including in the field of civil law. The clear idea of the concept of evaluation, its types, and features of application is important for law enforcement. It should be noted that more than a hundred evaluation concepts are used in the area of civil law at the regulatory level, among which temporal evaluation concepts occupy an important place.

Scientific knowledge of temporal evaluation concepts in the functional aspect will identify the functions of evaluation concepts in civil law as the main directions of their regulatory impact on public relations in order to create opportunities for situational and individualized legal regulation and law enforcement, adaptation of civil law to specific conditions of place, time and subjective composition of the law enforcement situation.

It should be noted that any scientific knowledge applied to achieve a reliable scientific result is impossible without the use of a number of research methods.

At the same time, the methodology of research of temporal evaluation concepts has not received adequate examination in the doctrine of civil law, which determines the relevance of this article.

In view of this, the purpose of the article is to perform generalized study of scientific methodology in order to establish its functionality by presenting general scientific approaches to the disclosure of its content.

2. The definition of the concept “methodology”

According to the explanatory dictionary of the Ukrainian language the methodology is, “firstly, the doctrine of the scientific method of cognition and transformation of the world, its philosophical, theoretical basis; secondly, the set of research methods used in any science in accordance with the specifics of the object of its knowledge” (*Busel, 2007: 664*).

The method (from the Greek “metodos”) is “the path to something”: the path to research, to knowledge, theory, teaching, a conscious way to achieve a certain result, the implementation of certain activities, solving certain problems (in the broadest sense of the word). It is the set of certain rules, techniques, methods, norms of cognition and action. It is the system of instructions, principles, requirements that guide the actors in solving a specific problem, achieving a certain result in a certain area of activity (*Konverskyi, 2010: 24*).

Clearly, the concept of methodology takes different forms in the process of scientific knowledge, in one or another area. Thus, sociologist T. Parsons (*Parsons, 2000: 31*) understands the methodology as a general basis for the reliability of scientific statements. According to O.V. Petryshyn (*Petryshyn, 2014: 32*), the methodology reflects a certain perspective on the subject area of the study that highlights the whole process of achieving a scientific result, involves the use of appropriate tools, techniques and methods of cognition.

O.M. Novykov (*Novykov, 2007: 20 – 21*) argues that the methodology is a doctrine of the organization of activities, i.e. the organization of effective activities that contribute to a new result.

M.M. Marchenko (1988: 27) provides a broader definition, namely, considers the methodology not only as a set of techniques, methods and tools for studying relevant phenomena and processes, but also as a special science that studies these tools, techniques and methods of research, develops technologies and methods for their application, characterizes opportunities for their combination in the implementation of the study and provides the formation of common approaches and rules for the application of techniques, methods and tools in the study of certain phenomena of social and legal reality.

E. Koziuba (*Koziuba, 1990: 7*) focuses on the multilevel nature of methodology in the course of analyzing philosophical methodology as a methodology of the highest level of generalization, which is the ideological basis for all scientific activities and specific levels of methodological understanding of science and practice, which is the system of research principles and methods of specific sciences, as well as the doctrine of this system.

Despite the existence of other definitions of the term “methodology” they are all reduced to basic task of methodology – the study of cognitive activity carried out in various areas of science, identifying general patterns of functioning and development of scientific thought, development of general scientific methods of cognition.

3. Classification of the methods

In general, the methodology of legal science is the system of approaches, methods, ways and means of scientific research. The basis for the methodology of legal science is:

– philosophical and ideological approaches (materialist or idealistic, dialectical or metaphysical, recognition or denial of objective social patterns (including state and legal ones), acquisition of true knowledge about them);

– general scientific methods, i.e. those used in all or most sciences (for example, such methods as structural, functional, ascent from the abstract to the concrete; formalistic

procedures: analysis, synthesis, etc.); group methods, i.e. those that are used only in a certain group of sciences, for example, only in social sciences (the method of specific sociological research);

– specific methods, i.e. suitable for the study of the subject matter of particular science (in jurisprudence – clarification (interpretation) of legal norms, special methods of generalization of legal practice). Research methods can be divided, somewhat conditionally, into empirical (attempts to identify, record, collect, systematize information about facts and phenomena) and theoretical ones (attempts to interpret, explain the collected data, construct concepts, definitions, forecasts, etc.) (*Syniehubov, 2015: 30; Antoniuk, Polonskyi, Averbchenkov & Malakhov, 2015: 36 – 37; Rabinovych, 2018: 215*).

The presented classification of the methods is the most commonly used, but taking into account the lack of consensus on the definition of the system and the hierarchy of methods of learning in the philosophy of law and the general theory of State and law, such a classification can be supplemented. However, the above group of methods is the foundation necessary for the full and comprehensive study.

Thus, philosophical laws and categories are of general and universal nature; they are used in any process of cognition of legal phenomena, including civil law. Moreover, the content of the philosophical level of methodology lies in the general principles of cognition and depends on which philosophical doctrine to adhere to by the researcher. That is, in general, everything depends on the direction of the individual (*Prokopenko, 2016: 449*). Philosophical methods do not always manifest themselves directly in scientific research, as they can be applied both consciously and spontaneously. However, in any science there are elements of universal significance, such as laws, categories, concepts, causes, etc., which make any science the so-called “applied logic” (*Konverskyi, 2010: 27*).

In turn, general and specific methods constitute the method of cognition of any branch of legal science in their combination, including the science of civil law. However, a separate specific method is designed to solve a specific task; the subject matter of research can be fully disclosed just in combination with other methods and approaches.

Before proceeding to the choice of methods that will constitute the methodology of temporal evaluation concepts in the civil law of Ukraine, it is necessary to take into account the opinion of P.M. Rabinovych (*Rabinovych, 2018: 215 – 216*), who urges to adhere to the following general methodological postulates: 1) the objective conditionality of the chosen research methods by their subject matter; 2) the need to establish a single truth that can be proved and verified through the certain objective criterion; 3) an indispensable indicator of the acceptability, heuristics of a particular research approach (method) should be its ability to facilitate the detection, disclosure of the social essence of the phenomena being studied.

Thus, it is necessary to distinguish the methods that constitute the methodology of temporal valuation concepts in the civil law of Ukraine based on the above classification.

4. Dialectical method

Thus, the basis for the whole study is the dialectical method, which should be understood as the method of thinking, studying, research. It is not a formal set of certain principles, but their system, presented in the form of moments of the living thought movement, among which start, progression, end result are the main ones. However, the main thing is that this method allows to reveal the “laws of human thought movement to the truth” in the process of cognition (*Lysyi, 2010: 22*). That is, the dialectical method helps to clarify the

legal essence of temporal evaluation concepts, to explore them in dynamics, development and contradictions.

However, the start of any research in the area of jurisprudence focuses on the knowledge of social relations governed by the relevant rules of law, where dialectical method can be useful, but by implementing it through the method of dialectical logic, historical method, system and structural method, etc. Through them, social relations can be considered as a complex social system that allows to clarify its legal nature, objective processes that take place in it, to determine the place and purpose of interconnected elements of the system, to consider their diversity, and to trace the course of solving the problem of legal support of certain social relations (*Zaic-huk & Onishchenko, 2006: 51*).

5. Historical and legal method

The use of historical and legal method to study the evolution of civil law regulation of valuation concepts in civil law is of particular importance. The historical approach is manifested in the direction of scientific knowledge from the present to the past, which determines its retrospective nature. With the help of the historical and legal method it is possible to study not only the genesis of evaluation concepts in civil law, including temporal ones, but also the preconditions and reasons for their improper regulation.

6. General scientific methods

Among the general scientific methods, we should highlight the comparative and legal method, as well as such methods as: abstraction, analysis and synthesis, induction and deduction, analogy and modeling.

Comparison is one of the main logical methods of cognition of the external world, objects and phenomena, which lies in the fact that we distinguish them from all other objects and establish their similarity with generic objects (*Lvova, 2012: 169*).

As a rule, the comparative and legal method can be used in two ways. The first way to apply the comparative and legal method lies in the study of the conditionality of the relevant legal systems by external, social factors. The second one is to establish and compare the content and composition of the rules that are the elements of the compared legal systems.

The comparative and legal method is used to study and analyze the regulation of temporal evaluation concepts in the civil law of foreign countries, in order to implement positive foreign experience into national legislation.

The inductive method of thinking is used to form scientific generalizations on the basis of empirical material, in particular on the basis of which judicial gaps are identified and conclusions on the existence of practical problems in the application of temporal evaluation concepts in civil law are drawn. The deductive method, as a method of ascension from the abstract to the concrete, from the general to the individual, is a method of research when the specificities of individual legal phenomena are derived from general ones (*Ludchenko, Ludchenko & Prymak, 2001: 49*). The use of this method allows to define the notion of temporal evaluation concepts, both in general and those inherent in civil law, their features and functions.

The method of analysis helps to distinguish the features and characteristics of temporal evaluation concepts in contractual and non-contractual obligations and in structuring evaluation concepts to study their essence.

In turn, synthesis is a process of cognition, the opposite to analysis, which lies in combining knowledge about individual parts, properties, relationships of a particular object in a system based on the results of their previous analytical research. The result of such a synthesis can be knowledge about the interaction of parts or properties of the object under study, establishing causal relationships between its individual components, finding the dependence of the function of each part of the object on the function of the object as a whole. Thus, the synthesis method is used to establish the interaction of the structural components of temporal evaluation concepts and their study in the analytical and synthetic aspect.

The method of analogy and modeling contributes to the development of proposals for the interpretation of civil law temporal evaluation concepts. By ordering the chaotic mass of the various elements of the legal phenomenon under study, modeling allows to reject secondary factors and focus on the essential properties of the studied system within legal science, thus stimulating a comprehensive understanding of the object (*Bezklubyi & Yefimenko, 2010: 15*).

7. Special legal methods

Research of temporal evaluation concepts in civil law can be carried out by applying special legal methods, namely: the method of interpretation of law, the method of studying legal practice, the formal and legal method.

Thus, the method of interpretation of law is used for the substantiation and study of law enforcement aspects in the work to clarify the content of legal norms and governing relations in the area of application of temporal evaluation concepts.

The method of dogmatic interpretation (grammatical, logical interpretation), allows to conduct etymological analysis of the concepts and legal phenomena studied in the work.

Formal and legal method highlights the formal content of legal norms or phenomena in their stable state, provides the definition of the general features of the object under consideration, its features, structure, classification. This method plays a significant role in the analysis, clarification, explanation, definition of concepts, without which it is not always possible to formulate existing problems. Note that this method is one of the oldest one in legal science (*Romanovych-Slavatynskyi, 1886: 51*). Despite its ancient origin, this method preserves its peculiarities not only in positivist but also in post-positivist methodology of legal reality (*Bielov, 2012: 64*).

8. Conclusions

Thus, it should be noted that the methodology is not limited to the methods of scientific knowledge, but has its own integrative patterns of development, as well as interconnected elements that perform only their inherent functions and implement the procedural tasks (*Dronov, 2018: 51*). A single method makes it possible to solve a specific problem posed by a scientist when conducting research, as well as, on the one hand, to qualitatively improve existing knowledge, and on the other hand – to identify problems that require further scientific research.

Summarizing the above, we can conclude that the methodological basis for the study of temporal evaluation concepts in civil law is a system of philosophical, general and special methods: philosophical (dialectical method is used to study the subject of study in the dynamics, development and contradictions); general scientific (empirical: the method of comparison is applied to identify differences between the studied legal phenomena); empirical and theoretical:

the method of abstraction makes it possible to identify the essential features of the studied objects, formulation of concepts and definition of functions, methods of analysis (in structuring evaluation concepts to study their essence) and synthesis (helps to establish the interaction of structural components of temporal evaluation concepts and their research in analytics and synthetic aspect), induction (on the basis of which judicial gaps are revealed and conclusions on the existence of practical problems in the application of temporal evaluation concepts in civil law are drawn) and deduction (in developing recommendations for the interpretation of civil law temporal evaluation concepts); historical method (is applied in the study of the normative evolution of temporal evaluative concepts in civil law).

Clearly, the above list of research methods is not exhaustive. Some aspects of temporal evaluation concepts are the subject matter of the study of sociology, psychology, political science, theory using methods specific to these sciences. At the same time, the above methodology allows to reveal the comprehensive content of evaluation concepts and to fully explore their individual aspects.

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THE POLITICAL CONTESTATION OF NORD STREAM PROJECT: MULTIDIMENSIONAL ANALYSIS

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Summary

This article aims to explain the influence of different dimensions of political deliberation over the two strings of the Nord Stream pipeline on the European Union's ability to act as a unified actor with coherent strategy in the realm of global energy diplomacy. This study concentrated on four main cleavages of the project's political contestation: international, supra-national, transatlantic and environmental. The analysis of the Nord Stream project's political contestation implies four basic insights. The first one is the absence of principal unity among EU member states regarding both of their economic interests and interpretation of key political developments on the continent. Second, the market-oriented spirit of EU legislation complicated the incorporation of any broader geopolitical considerations in decision-making over the pipeline's future. Third, the EU's overdependence on the US in geostrategic issues highlighted problems in realization of idea of "geopolitical Europe" as an independent actor with a coherent strategy on the international level. Fourth, the policies for reaching each of the three broad goals of EU energy policies (marketization, securitization and decarbonization) are often contradictory between each other, which was exemplified by the presented case.

Keywords: Nord Stream, natural gas trading, energy diplomacy, geopolitics, EU, US, Russian Federation.

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1. Introduction

The issue of pipeline Nord Stream in recent years turned to be one of the most heatedly discussed topics in international relations on the European continent.

This article aims to explain the influence of different dimensions of political deliberation over the two strings of the Nord Stream pipeline on the European Union's ability to act as a unified actor with coherent strategy in a realm of global energy diplomacy. The interest of competing sides and their strategies chosen for achieving desired policy goals would be especially taken into account.

Under the Nord Stream project we would broadly understand all four gas transporting pipelines linking Russia with northern Germany which were already built or are currently under construction by subsidiaries of Russian state-owned corporation Gazprom. The first two lines of the project, constructed at the beginning of 2010s were called in the media Nord Stream pipeline, and the last two lines being under construction from 2018 onwards – Nord Stream 2. In order to avoid the confusion in terms and to underline the continuity of the main political idea staying behind the construction of both strings, we would name all four lines in general Nord Stream project, and the first string – Nord Stream pipeline.

The Nord Stream project was researched by such scholars as S. Andersen, B. Gens, M. Honchar, O. Kravchenko, D. Langlet, P. Noël, A. Riley, A. Schmidt-Felzmann,

N. Sitter, M. Siddi, A. Strygul, O. Sukhodolia, K Talus, F. Umbach, A. Vihma and many others. Nevertheless, most of the existing studies highlight often some particular aspect of the Nord Stream project neglecting the multidimensional essence of the issue. It represents the main drawback of existing scholarship. For that reason, this study would try to explain the complex interrelation between the main dimensions of the conflict over the Nord Stream project.

This article would be structured as follows. The first section would be briefly dedicated to the history of the evolution of the Nord Stream pipeline project from the 1990s until the current time with paying attention to its broader political significance. The next four sections would be concentrated on four main cleavages of the project's political contestation: international, supranational, transatlantic and environment. The conclusion would be made at the end.

2. The evolution and the role of the Nord Stream project

The idea of constructing a pipeline from Russia to the northern part of Germany on the bottom of the Baltic Sea could be dated back to the 90s when Gazprom in partnership with company Neste from Finland created the joint company "North Transgas OY" which existed until 2006. However, the real progress started only from the middle of the decade. The new joint company was formed in 2005 in Swiss city Zug under the name North European Gas Pipeline Company (later renamed Nord Stream AG). The list of shareholders, apart from Gazprom, included German companies Wintershall (a subsidiary of BASF) and E.ON Ruhrgas. They were later supplemented with Dutch Nederlandse Gasunie in 2007 and French GDF Suez (since 2015 – Engie) in 2010 which bought part of the shares of German companies. At the end the shares were distributed as follows: Gazprom – 51%, Wintershall and E.ON – 15.5% each, Gasunie and GDF Suez – 9% each. The building of the first two lines of the Nordstream with an overall annual capacity of 55 bcm was completed in 2010-2012.

Almost immediately after the successful construction of the pipeline Gazprom started to study the possibilities of doubling its capacity. The deterioration of relations between Russia and Ukraine in 2014 after the Russian occupation of Ukrainian Crimea and military support of pro-Russian separatists in the eastern part of the country created the need for Kremlin to reroute the transit of its natural gas export away from Ukraine until the expiration of the 2009 transition contract at the end of 2019. In September 2015 Gazprom together with BASF, Engie, E.ON, OMV and Shell decided to build the pipeline Nord Stream 2 repeating the route of the Nord Stream with exact capacity. For that reason they formed the joint company New European Pipeline AG (later – Nord Stream 2 AG). However, after the threat of possible sanctions from Polish antimonopolist authority, Western European companies formally quitted the project and Nord Stream-2 AG become fully owned by Gazprom. Nevertheless, the partners found alternative way of participating in the project as investors: in 2017 the agreement about the financing of construction work was signed between Nord Stream 2 AG and Engie, OMV, Shell, Uniper, Wintershall (BASF subsidiary). Installing the pipes on the seabed began in July 2018 and was initially planned to end in 2019. Due to the delays with obtaining Danish environmental permits and US sanctions construction works were considerably prolonged. Nevertheless, it is expected to be completed in autumn 2021.

Nord Stream project is also supported by two onshore pipelines that span from the German shore of the Baltic sea toward the German-Czech border. The first of them, OPAL with an annual capacity of 36 bcm, was built in 2010-2011. Second, EUGAL with a capacity of 55 bcm has been built since mid-2018 and started its operation in April 2021.

Nord Stream project with its overall capacity of 110 bcm per annum provides the ability for both Russia to bypass or substantially minimize the deliveries through traditional transit routes of Ukraine (146 bcm of annual gas transporting capacity), Belarus and Poland (33 bcm). In the view of project's initiators, its rationale is in limiting the possible negative influence of political conflicts between Russia and transiting countries on the security of gas supply.

The critics usually point to three main controversial aspects of the Nord Stream 2 project. First, it breaches so called principle of "EU energy solidarity". The trade with one group of EU countries might allow Russia to continue blackmailing its transit partners and importing countries with gas issues by minimizing dependency on their gas transporting systems from the Russian side. Second, this pipeline was claimed to be contradictory with officially proclaimed policy goals of enhancing the overall level of gas supply security in Europe, insomuch as it provides diversification of importing routes without diversification of importing sources. Third, many analytical studies have refuted the basic arguments of pipeline proponents by arguing that Nord Stream 2 project has little economic sense. Most remarkable from them are report prepared by two Russian analysts from state owned Sberbank where they concluded that the biggest beneficiaries from Nord Stream would be neither exporting side nor importing but the firms involved in construction works (*Brzozowski, 2018*).

3. National cleavage of political contestation.

The question of the Nord Stream project appeared as highly controversial established itself as an apple of discord for policy debates between the different EU member states. One part of the EU member states viewed the increase of economic interdependency with Russia provided by the Nord Stream project as an opportunity, other labeled it strictly as vulnerability due to their spatial localization in traditional "sphere of Russian influence".

To the most pronounced proponents of the second string of Nord Stream project belonged Germany, Netherlands, Austria, Belgium and Bulgaria, to the opponents – Poland, Lithuania, Latvia, Estonia, Romania. Other countries remained rather neutral towards the project or had changed their position depending on circumstances, like Italy or Hungary. Scandinavian EU members were prepared to grant all the needed permits for the project but were expecting the reaching of broad political compromise about the project satisfying all sides.

Each state has its own motivations which defined its position toward the project. Germany had an economic rationale for supporting the project. The country's bold approach for decarbonizing its economy and steady removal of coal from its energy mix (so-called "Energiewende") coupled with strong anti-nuclear sentiment paved the way for increased demand for natural gas. Due to the influence of unstable weather conditions for the production of renewable wind and solar electricity, gas was presented as the solution for ensuring the stable flow of electricity in the grid system during all times of the day. The decline of output of Dutch Groningen natural gas field, the biggest gas field on the territory of EU, created the need for additional gas supplies in the region of North-Western Europe (*Wehrmann & Wettengel, 2018*).

Netherlands and Austria were in general favorable for the Nord Stream project. The main role played that the company with the headquarters on their territory participated in the project – Dutch Gasunie as a shareholder in Nord Stream AG and Austrian OMV as one of the financiers of Nord Stream 2. Bulgaria supported Nord Stream 2 project because of its general warm relations with Moscow and hoped to play a more important role in Balkan gas trading. After the deterioration of Russian-Turkish relations after the shooting down of a Russian military plane

crossing the Turkish border in 2016, Bulgaria hoped to regain its role as a first destination point for the Russian subsea pipeline, as it was planned before 2015 (Gotev, 2019a).

The motivations of Poland's radical opposition to Nord Stream 2 construction are tightly connected to its interpretation of historical experience and previous economic dependency on Russian gas import. Transit revenues from the pipeline Yamal-Europe (33 bcm per annum) were an important source of Polish budgetary income. Having developed a wider regional diplomatic strategy, Poland established itself also as an advocate of Ukrainian interest in this issue in the EU institutions. Baltic countries were traditionally against the increase of Russian economic influence in Europe due to their historical experience with Soviet occupation and their status as NATO borderland to Russia. Romania was another country affected by Russian bypassing pipelines anticipating losing of its transit status after the starting of Turkish Stream's operation.

Apart from described in other section political struggle on the platform of European Council, the anti-pipeline states managed to implement measures for influencing the process of object's construction: proposing alternative to the Nord Stream 2 pipeline route (Amber pipeline advocated by Poland and Baltic countries at the beginning of 2010s); building new gas infrastructure with co-financing from EU funds to minimize own dependency on Russia (LNG terminals in Polish Swinoujscie and Lithuanian Klaipeda; Gas Interconnector between Poland and Lithuania (GIPL), Baltic pipe between Denmark and Poland; Balticconnector between Estonia and Finland) (Vicari, 2019:11-15); complicating Gazprom's pipeline construction by legal means (6.45 billion euro fine issued for the participating in Nord Stream 2 construction companies by the Polish competition watchdog in 2020 (EURACTIV, 2020)).

4. Supranational cleavage of political contestation

The second cleavage is a traditional division between the supranational EU institutions and national governments. The discussions over the Nord Stream project were, in this regard, the battleground between European Commission's policy entrepreneurship for closing the important gap in EU energy acquis and ending Gazprom's monopolist control over the Nord Stream, and resistance of particular countries defending the interests of their large companies exploiting this legal gap in their cooperation with Russians.

The position on the Nord Stream project has steadily evolved in Brussels. In 2006 Nord Stream obtained the status of the project of common interests. Members of the European Commission were present at both the official starting of the Nord Stream's construction works in April 2010, as well as on the formal ceremony of the pipeline's inauguration in November 2011.

In 2015 Gazprom's intention to double the existed capacities sparked much heated political debate. The question was discussed at the summit of the EU Council in December 2015 (Gotev, 2015). In February 2016 was published the open letter to the European Commission signed by the leaders of eight EU member states: Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia. They highlighted the possible negative impact of the proposed pipeline on the security situation in Central and Eastern Europe (Sytas, 2016). In his answer the President of the European Commission Jean-Claude Juncker assured them that Nord Stream 2 must fully comply with the norms of EU acquis, especially third energy package (European Political Strategy Center, 2017: 8).

From 2017 was clear that European Commission did not view the strategic rationale for a common EU energy security in extending the Nord Stream pipeline. The thinking of the European Commission on the Nord Stream 2 could be illustrated by the unofficial report prepared by the Commission's staff in 2017. It maintained that, in case of its successful construction, Nord

Stream 2 would be hardly compatible with EU strategic goals (*European Political Strategy Center, 2017: 1,2,6*).

The main emphasis of the further discussion about the Nord Stream 2 was centered on the question, whether EU energy legislation should be applied to this project. The first view supported the claim of project owners that Nord Stream 2 should be exempted from the requirements of EU energy law similar to other pipelines connecting the EU territory from the third countries (*Lissek, 2016*). Another vision provided the inclusion in EU law jurisdiction of that part of the pipeline which was located in the maritime exclusive economic zone of Germany. Due to the practical hurdles in the legal division of one pipeline into two parts with different regimes of legal regulation, the proliferation of EU *acquis*' jurisdiction over the one part of Nord Stream might lead to the complete inclusion of the infrastructure object in the EU legal space (*Riley, 2016*). Russia was traditionally reluctant to implement EU energy law because its requirements of unbundling and third-party access were incompatible with the vertically-integrated structure of Gazprom which secured its revenues by controlling both extraction, transportation and marketing of natural gas. Therefore, it was highly possible that Gazprom may cancel the project in the case when the EU legal jurisdiction would be proliferated over the Nord Stream 2.

During 2016-2019, European Commission has pursued three different strategies in order to secure the compliance of Nord Stream 2 with the third energy package.

The first effort was in direct demand of compliance in order to avoid the Nord Stream 2 operation in the "legal void". But in 2017 the legal Service of the Commission and German national regulator both issued a negative judicial assessment of this proposal evaluating it as contradicting to the existed at that time norms of adopted in 2009 third gas directive. Another mechanism was the conclusion of a separate intergovernmental agreement between Russia and affected by the construction countries under the coordination of European Commission (*Gotev, 2017*). But this idea was also rejected by the legal service of European Council in September 2017. (*de Jong & Van de Graaf, 2020: 6-7*).

After facing these obstacles, officials of the European Commission decided to change the legal base. In November 2017 Commission published the draft proposal for directive amendments which provided the inclusion of offshore pipelines going from the third countries to the EU territory into the jurisdiction of EU energy law. From November 2017 to April 2018 the work on the proposal was held in the Industry, Research and Energy Committee of EU parliament.

However, the process was substantially protracted after being sent to European Council. Three groups were clearly formed based on their position regarding the spreading of EU energy *acquis* over the Nord Stream. The first group included supporters of this decision including Estonia, Latvia, Lithuania, Poland and Romania. The group of opponents was formed by Germany, Netherlands, Belgium, Austria and Bulgaria. Most other countries were merely neutral to the issue. In order to obtain the blocking majority in the council, the opponents of the directive amendments needed to secure the votes of the four countries which comprised 35% of the EU population. However, the weight of the combined population of beforementioned group of countries represented only 27% of the total EU citizens.

This stalemate increased the weight of France in blocking or pushing for the decision. Paris, despite the presence of French company Engie among the beneficiaries of Nord Stream 2, has abstained from active participation in discussions over the gas directive amendments during most time of the process. But in February 2019 France surprisingly decided to support the last version of amendments, which made its adoption highly possible. French insistence on the

Nord Stream 2 compliance with third energy package might play the role of bargaining chip for guaranteeing German concessions in other unrelated policy fields, as in French-German bargainings about the common Eurozone budget and debt system (*Gotev, 2019b*).

The final deal reached by the parties appeared as a compromise: Germany acceded to vote for the third directive amendments, but the final say on the project certification was agreed to be transferred on the national level (to Bundesnetzagentur) which kept Germans calm about the future of the pipeline (*Simon, 2019*). The amendments to the directive were adopted in April 2019. After that the members of the European Commission publicly recognized that the future of the project depends solely on Germans (*EURACTIV, 2021*).

However, despite eliminating the possibility for cancelling the project, directive amendments presupposed norms creating complications for Gazprom, which were followed by the German national energy regulator. In May 2020 Bundesnetzagentur refused to grant for Nord Stream-2 derogation (exception) from the EU rules, which presupposed that all norms of European energy legislation, such as third-party access, unbundling and commercial transparency should be implemented in regard to the offshore part of the pipeline, located no longer than 12 nautical miles from the seashore (*Talus, 2020*). The details of practical implementation of this requirement could be evaluated only after the beginning of the functioning of Nord Stream 2 and after the end of initiated by Gazprom court proceedings aimed at annulling gas directive amendments (in EU Court of Justice and under Energy Charter Treaty).

5. Transatlantic cleavage of political contestation

The issue of the strategic autonomy of the EU as a unified actor with coherent strategy in foreign relations is a recurring question permanently arising regarding different events. The sanctions of Donald Trump's presidential administration against companies involved in the construction of the Nord Stream-2 pipeline showed the scope of US economic leverage over the EU. Also, these extraterritorial sanctions underlined the internal contradictions inside the EU. US actions converged with the interests of some EU member-states, like Poland or Baltic countries, to a larger extent than the activities of their western EU neighbors.

We can broadly define two possible motivations for US active involvement in the issues related to the Nord Stream project. The first one was in strategic support of Eastern and Central European countries against possible Russian economic pressure. American officials blamed Kremlin for the weaponization of the gas trade and therefore were presenting the US as acting on behalf of disadvantaged by Russian pipeline diplomacy countries, especially Ukraine (*Janjevic, 2019*). Such American position was met with enthusiasm by regional stakeholders, including Polish and Ukrainian officials (*Rau & Kuleba, 2021*).

Second, Russian political elites and opponents of US sanctions against Nord Stream 2 underlined the presence of economic rationale for the US to block the pipeline. They framed active US diplomatic posture regarding this issue as American efforts to remove the pipeline as a possible competitor for the US LNG export in North-Western Europe. From the first day of its tenure, the presidential administration of Donald Trump advocated so-called "new energy realism" which presupposed the active promotion by the United States of its LNG export abroad. President Trump led very active energy diplomacy in the European region urging EU leaders to increase the levels of LNG purchases from the US (*Vicari, 2019: 2-5*).

Before May 2021, the US already imposed three rounds of sanctions on the project. They provided restrictions of obtaining US visa and the possibility of freezing the assets of companies located on the territory of the USA. The only way to avoid them was to quit voluntarily the

project. The exact list of commercial entities subject to potential sanctions needed to be defined in detail by officials of the State Department. There were obliged to contact targeted companies to warn them about the consequences.

The first round of sanctions, officially proclaimed in December 2019, was concentrating only on companies providing vessels for pipeline construction. Their imposition has immediately stopped the construction works which were expected to be completed until summer 2020. Swiss-Dutch company Allsea, which was the main Gazprom's contractor for the laying pipeline, announced the exit of its pipe-laying vessels *Pioneering Spirit* and *Solitaire* from the project (*Soldatkin et al., 2019*). That move could initially kill the hope to complete the pipeline, but Russians have predicted such possible developments and therefore bought earlier other vessels. As a result, the construction works were resumed at the end of January 2021.

In December 2020 US passed the second round of sanctions in the framework of the annual National Defense Authorization Act. This time the menace of facing restrictions on commercial activities was facing not only the companies directly involved in construction works but also those corporate entities engaged in secondary activities like insurance, testing, inspection, etc. services. A new wave of withdrawals from the project started. It was headed by Zurich Insurance Group AG, Danish engineering company Ramboll and Norwegian certifier DNV Holding AS (*Vanttinen, 2021*).

The first two rounds of sanctions were met negatively by officials of both national and EU supranational levels. Due to their extraterritorial nature, they were seen as US intrusion in internal EU affairs (*EURACTIV, 2019*). In August 2020 24 EU member states issued a written complaint to US State Department about the restrictions put on EU companies (*Hernandez, 2020*). Nevertheless, the lack of tools for reacting on such types of situations was obvious. EU High Representative Josep Borrell even announced a proposal to elaborate the mechanism of the EU's reaction toward extraterritorial sanctions imposed by third parties.

After the start of Joseph Biden's presidential tenure in January 2021, the situation in Washington changed. New US President from Democratic Party-Democrat was less committed to promoting US fossil fuel export. Also, rapprochement with the EU in general and with Germany, in particular, occupied a prominent place in Biden's foreign affairs promises for his term. Continuing hardline behavior on Nord Stream-2 by threatening to sanction EU-based companies would not contribute to the warming of transatlantic relations after the strained period of the Trump administration.

Therefore, to avoid increasing confrontation with the EU, the American position on the pipeline started to soften in February 2021. The vessel *Fortuna* and its owner, Russian company KVT-Rus, was included additionally in the sanction list in February 2021. However, this extension of sanctions omitted EU companies related to the project (*Jirušek & Dillon, 2021*). In May 2021 State Department issued a third round of sanctions which extended the list of Russian entities and ships involved in the construction of Nord Stream. However, at the same time, US lifted the restrictions against Nord Stream-2 AG and its director Mathias Warning motivating this move by national US interests (*Shalal et al., 2021*). It was widely perceived as US refusal from the hard-line strategy of blocking Nord Stream-2 construction.

6. Environmental cleavage of political contestation

The fourth political cleavage which appeared during the deliberations over Nord Stream was about the vision of the future EU energy system in the framework of global planetary effort

for limiting man-made CO₂ emissions and the role of natural gas in these plans. However, in regard to Nord Stream, EU officials played a minor role in these discussions claiming the lack of formal powers in this area. The basic effort of challenging Nord Stream from an ecological perspective was made by environmental activists, experts and scientist challenging in courts and trying to bring public attention to the correspondence of the Nord Stream-2 pipeline with the general promises about the future development of the energy sector, made on the highest EU political level.

We can distinguish two basic reasons for challenging Nord Stream from the ecological perspective.

The first one is possible harm from pipelines' construction to the Baltic Sea seabed and flora and fauna in affected areas. Already in July 2008, European Parliament supported by a wide majority non-legislative report, prepared by Polish MP Marcin Libicki, questioning the rationale for laying the pipeline on the Baltic seabed due to the presence there of many military mines left there since the times of Second World War (*EURACTIV, 2008*). The ecological accusations were made later also against the second string of Nord Stream. Berlin-based environmental NGO Nature and Biodiversity Conservation Union (NABU) have calculated that dredging of sea sediments and related to that releasing of bioavailable phosphorus would kill large amount of Baltic sea plants and animals. The construction works also had documented cases of polluting environment, as it was in June 2018 in the Bay of Greifswald in the northeastern part of Germany (*Harper, 2018*), or killing local plants, as it was in the Russian Kurgalsky nature reserve (*Istrate, 2019*).

The second line of environmental opposition to the Nord Stream, especially pronounced during the construction of its second string, stressed the project's significance in the context of the policies aimed at the reduction of general European carbon dioxide emissions. Stephan Singer, the senior policy advisor of Climate Action Network (CAN), claimed that in accordance with calculations of his organizations, both strings of Nord Stream would provide more than 10% of the overall EU CO₂ emissions (*Singer, 2020*).

The representatives of Nord Stream AG tried to justify the rationale of their project with references to the release of greenhouse gases. The company's representatives claimed that technical peculiarities of the gas transportation through the Baltic way provides reducing of carbon emissions by 43% and 37% in comparison to Ukrainian and Belorussian corridors, respectively (*Pötter, 2021*). However, the scenario of full bypassing of existing transit countries as something positive for the climate may be questionable due to the possibility of stopping their transport capacities' exploitation. As Mikhail Korchemkin from East European Gas Analysis suggested in his analysis, the full deposition of Ukrainian pipelines after the full removal of transit may worsen situation with CO₂ emissions in the region: a deficit of gas transport capacities during the peak times coupled with limited transport capacity from western direction might be covered by the increased usage of coal-fired power plants (*Korchemkin, 2018: 6-8*).

Despite all public doubts about the carbon emissions, the legal basis was not favorable for the real challenging of Gazprom's project from a judicial perspective. All complaints questioning the regulatory framework or methodologies of project's environmental assessments were rejected by the local courts. That was valid for the lawsuits initiated by Environmental Action Germany (Deutsche Umwelthilfe, DUH) (*Dziadosz 2020*) and journalist Malte Heynen (*Schulz 2020*) in Germany, of nonprofit organization Clean Earth in Finland and Sweden, and of Greenpeace Russia in Russian Federation (*Istrate, 2019*).

7. Conclusions

The controversial nature of the Nord Stream project exposed different dimensions of political competition, related to the diverging visions of the future of EU energy policy and energy diplomacy. To these battle lines belong international, supranational, transatlantic and environmentalist cleavages.

The analysis of political competition around different aspects of the Nord Stream project implies four basic insights.

First, the discussed issue demonstrated the absence of principal unity among EU member states in regard to both of their materialist economic interests and ideational interpretation of key political developments on the continent.

Second, the appearance of numerous institutional and political obstacles impeding the European Commission's efforts for solving the problem of the Nord Stream project showed the limited powers of the Commission in balancing the interests of different nations under the basic principle of "energy solidarity". The liberal market-oriented spirit of EU legislation complicated the incorporation of any broader geopolitical considerations in decision-making over the pipeline's future by giving the opportunity for project proponents to claim discriminatory treatment.

Third, Brussels' inability to defend the interests of particular post-communist countries in the Nord Stream project issue have additionally underlined the EU's overdependence on the US in geostrategic issues and the problems in realization of idea of "geopolitical Europe" as an independent actor with a coherent strategy on the international level.

But the most important takeaway from our discussion is that the basic design of EU energy policy is based on principles with often contradictory results of practical policy implementation. The materialization of each of the three principles of EU policy in the energy domain (marketization, security, decarbonization) is naturally restrained by the need for taking into account the other two policy goals. In the case of the Nord Stream project that ended by the shaky balance when the proponents of the primacy of each of the principles could be hardly satisfied by the outcome: the construction of the Nord Stream 2 pipeline was not stopped and its role in emitting carbon dioxide was not seriously taken into account, but at the same time, the extension of the jurisdiction of EU energy *acquis* over the part of the pipeline might substantially harm Gazprom's monopolist position as pipeline's owner.

Future research should put a special emphasis on two basic factors. The first of them is the dualist nature of EU energy diplomacy with its unstable balance between the national interests of EU member states and the supranational manufacturing of common regional position. The second factor is the practical interrelation between different values and desired outcomes in shaping the real-life decision-making processes in the EU political system.

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DIGITAL MODELS OF INTERACTION DURING THE APPLICATION OF MECHANISMS FOR APPEALING THE SERVICE ACTIVITIES OF PUBLIC AUTHORITIES

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Summary

In order to achieve high results in building a competitive economy and a responsible civil society, it is important to pay attention to the development of control systems over the adoption and implementation of management decisions. At present, such activities need to be modernized towards the digital transformation of public administration using the capabilities of information and communication technologies in accordance with international standards and international legal acts, most of which have been ratified by Ukraine. To do this, the only criterion of efficiency should be the actual result obtained from the service activities of public authorities, which should be transparent and competitive. It is necessary to develop models of digital interaction taking into account international experience. There is an urgent need in Ukraine to inspect obsolete norms and create on this basis effective models of digital interaction between the government and the citizen in the field of mechanisms for appealing against the service activities of public authorities.

The article describes the models of digital interaction in the application of mechanisms for appealing the provision of services by public authorities, identifies the main examples of successful application in practice of European countries. It is established that the influence on the provision of services by a citizen is mostly formal and declarative. The legal framework in this area must be modern and in line with international standards ratified by Ukraine.

Keywords: service activity, digital interaction, public authorities, appeal mechanisms, public administration, digital transformation.

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1. Introduction

Ensuring the state's mass introduction of information and communication technologies with the simultaneous digital transformation of public administration is considered in most countries as one of the national priorities. The existing digital divide causes countries to lag behind in the growth rate of goods and services, which automatically causes a lag in economic development, and the sustainable development of digitalization, on the contrary, improves the quality of life and competitiveness of the country in the international arena.

The SARS-CoV-2 virus pandemic has caused a global crisis and changed the order of life. The public and private sectors face the problem of providing access to all business processes and services. The unpredictable situation demonstrated the different level of digital

inequality in the world to the readiness and ability to withstand emergencies in the provision of public services to the population.

Therefore, it is necessary to build a modern service-oriented policy of the state in relations with the citizen, because the person is his main value, and respect for human rights – the main purpose of public authorities. Governments should create and develop a legal framework, promote the scientific and technical implementation of the digitization of public authority instruments in accordance with the best European rights practices set out in the EU Charter of Fundamental Rights (*1.EU. Charter*). The need to reorganize interstate relations in this area between our countries is obvious. The initiative to create joint unifying platforms for digital data and registers of services of public authorities in the form of the system of electronic interaction of state electronic information resources "Trembita" created in Ukraine will promote the development of legal relations and the economy.

Ukrainian specialists in innovation in the field of information and communication technologies have shown themselves to the best of their ability and are desirable employees in the development of digital interaction services in all countries of the world. However, due to the above circumstances, the patriotic intentions of many of them to implement and assist their country in this area in the development and implementation of tools for digital transformation of public administration, communication between government and citizens remain relevant. Such a transformation is already taking place and is being carried out using digital technologies. Openness, transparency, government accountability and participation in governance are the basis for good governance, and technology ensures the accessibility and simplicity of these processes.

The state must ensure the effective implementation of international legislation adopted and ratified by it in the field of development of digital interaction in public administration, including for the development of mechanisms for appealing service activities. Civilizational progress and the growth of economic competition for resources push for the need for rapid development of digital interaction models. A clear example of the collapse of management decisions against the background of a global pandemic has exacerbated the need for such a need.

2. International legal priorities for the development of digital interaction, including the use of mechanisms for complaining about the service activities of public authorities

Sensitivity and danger to society have been demonstrated by a worldwide pandemic of the SARS-CoV-2 virus, which has claimed millions of lives worldwide. Mankind has been unprepared to accept global threats and has shown a level of readiness for a general mobilization of efforts to overcome negative phenomena.

One of the elements of opportunities for rapid and effective mobilization of efforts is efficiency in making and applying mechanisms for appealing management decisions. This should be facilitated by ensuring an appropriate level of digital interaction in the provision and receipt of services provided by the state to the citizen through public authorities.

In crisis situations, both the public and private sectors have faced the acute problem of providing access to all business processes, as well as obtaining and appealing for services remotely online. That is why the issue of digital transformation of public administration has become no longer a dogma, but an existing necessity.

Ensuring by the world's competitive economies the introduction of information and communication (digital) technologies (hereinafter ICT) as elements of digitalization of

society is considered as one of the strategic tasks and national priorities. In the absence of such support, a digital divide is created, which causes the country to lag behind in the growth rate of goods and services produced through ICT. This automatically causes the country's economy to lag behind in economic development. At the same time, the sustainable development of the digital transformation of public administration, on the contrary, provides an increase in the country's competitiveness in the international arena, which automatically increases the quality of life.

The need for such development has become the basis for the development and adoption of countries with strong economies strategies for digital transformation in their countries. Among such countries that have already implemented the above strategy are: Belgium (5), Denmark (6), Germany (7), Singapore (8), the United States (9), Switzerland (10), Sweden (11).

In 2016, at the initiative of the Government of Ukraine and the non-governmental expert community, the Digital Agenda of Ukraine project "Digital Agenda 2020" was developed and adopted, which outlines the basic principles of digitalization of Ukraine in seventeen sections. Currently, in the expert environment, analysts of the independent analytical center "Ukrainian Institute of the Future" are creating a program document: "Ukraine 2030e – a country with a developed digital economy" with the development of direction for digitalization of public administration, which is presented in section 6.6.2. "The role of the state in achieving KRI" (4. *Ukraine 2030*).

It is obvious that in order to achieve its strategic goals, Ukraine needs to accelerate the development of digital transformations on the example of already implemented strategies and must ensure the normative consolidation of the experience of EU countries. Components of digital transformation can be: data registers; elements of digital transformation of both individual businesses and entire sectors of the economy and management; elements of the sharing economy; virtualization of physical infrastructure IT-systems; Artificial Intelligence; digital platforms.

In view of the global changes in the world in 2020, the Secretary-General of the United Nations (hereinafter UN) Antonio Guterres stressed the need for member states and others to "start a decade of work and action for the benefit of people and the planet" and presented a UN study: Digital government. Decade of Action for Sustainable Development (2. *Research. United Nations. 2020*).

According to the Department of Public Institutions and Digital Government of the UN Department of Economic and Social Affairs (3. *EGDI Index. 2020*), Ukraine in 2020 ranks 69th out of 193 countries in the e-Government Development Index (EGDI). It should be noted that since its inception in 2001, this Index has become an indispensable tool for ranking, mapping and changing development for digital governments, as well as policymakers, analysts engaged in comparative analysis and current research in the field of digital government. EGDI – is an index based on the average values of three other indices: one third of the data from the Telecommunications Infrastructure Index (TII), one third from the Human Capital Index (HCI), one third from the Online Services Index (OSI), and the latter collected on the basis data collected from the Independent Online Service Survey (OSQ) conducted by UNDESA, which assesses the national online presence of all 193 UN member states, supplemented by a Member State Survey (MSQ). The review also includes the Electronic Participation Index (EPI).

In pursuance of the above-mentioned UN initiative, on March 9, 2021, the European Commission in Brussels adopted a new Strategy for the Digital Transformation of Europe until 2030 and ways to achieve them "European Digital Decade" (4. *EU Strategy*). The European

Commission proposes to introduce a digital compass for Europe to realize the EU's digital ambitions by 2030 within specific deadlines in four areas: citizens' digital skills; secure, productive and sustainable digital infrastructures; digital business transformation; digitization of public services.

The above indicates the urgent need to develop digital interaction in the adoption and implementation of decisions of public authorities and transparent access to such information to all online.

Today, the pandemic has intensified the role of digital interaction in government, both in the traditional provision of digital services and in new innovative crisis management efforts. Such crises have brought to the fore numerous problems and numerous forms of the digital divide, especially among the poorest sections of the population and the most vulnerable groups. While the pandemic has intensified the role of e-government, both in the traditional provision of digital services and in new innovative efforts to manage the crisis, it has also brought to the fore the many forms of the digital divide, especially among the poorest. and the most vulnerable groups. a tool for mapping and measuring development for digital ministers, policymakers and analysts involved in benchmarking and current e-government research. The launch of this review also takes place at an unprecedented time in the COVID-19 pandemic. While the pandemic has intensified the role of e-government, both in the traditional provision of digital services and in new innovative efforts to manage the crisis, it has also brought to the fore the many forms of the digital divide, especially among the poorest. and the most vulnerable groups.

3. Classification of digital interaction models using mechanisms for appealing the service activities of public authorities

Secure digital data exchange is one of the key components of the digital transformation of public administration. The practice of European experience in this area allows us to conclude that there are four basic approaches to the implementation of a secure experience of digital data exchange.

Such models can be called and characterized – centralized, decentralized, transitional and free models.

The centralized model is characterized by access to a single centralized IT system, to which digital data systems of certain public authorities are connected and serviced, which are the owners of basic registers and developed common access interfaces for all users in advance according to common requirements and formats. Access to such information and registers is possible for all other authorities that are connected to the centralized system. The authorities are connected to such a system by concluding pre-standardized standard agreements on digital interaction, which are carried out in order to use certain registers, which should be placed on a single digital platform with interoperable tools for its use according to uniform international norms.

At the same time, the central IT-system provides unified verification, routing, as well as ensures the delivery of messages and the appropriate level of logging of all actions. The system administrator provides centralized maintenance of the register of access services, access matrices, agreements on information interaction, maintenance of uniform semantic classifiers.

The decentralized model differs from the centralized architecture of the IT system, which provides automated data exchange between information systems of public authorities. The functions of logging, verification and routing of messages between information systems are transmitted through the capabilities of unique software for the parties, which is integrated in

advance and provides data exchange of specific digital systems. That is, the difference is in the use of specialized software between the parties.

When using the transitional model, a comprehensive request for information is made responsibly to a specific scenario – the provision of appropriate administrative services, a defined set of access services of the central IT-system. It collects the necessary information from the access services of the basic registers of the authorities-supplier of information and generates a comprehensive response of the authority-customer of information. At the same time, the central IT-system implements the automation of business processes in accordance with specific scenarios for the implementation of government powers, which makes it possible to obtain information from several registers.

The free model involves the exchange of information by government systems through the use of open formats, protocols and regulations. This model assumes that each authority that introduces digital data exchange receives its own special software. This allows you to use the same functions for routing, identification, saving the entire history of data exchange, receiving and generating requests, processing and sending responses.

When considering approaches to legal regulation when using different models of digital interaction when using mechanisms to challenge the service activities of public authorities, it is necessary to take into account certain features. They arose as a result of different approaches in the history of legal regulation of countries, legal traditions, as well as political and economic traditions and differences between states. The main factors that determined the features of digital government legislation were the geography of the region to which the state belongs, taking into account certain geopolitical aspects. According to such criteria, the world distinguishes: Continental European model, Anglo-American model, Asian model.

In addition to the above, it is necessary to draw attention to the digital model of interaction for blockchain solutions, which has three levels of interoperability, namely: the level of agreements, technical level and level of infrastructure.

In more detail, the Ukrainian scientist Osmak A.S. researched the issue of detailed characteristics of blockchain systems and components of the concept of interoperability in his scientific works. Thus, he notes that the level of agreements involves the exchange of data between blockchain systems, in which the management models that govern such systems must be comparable in a clearly defined legal framework and agreements.

The components of the transaction level are:

a management system that ensures the reliability of participants and aims to develop and agree with different blockchain systems a common management model, where only qualified participants can provide information on a common platform, as they act on behalf of the whole system;

standardization of data is the exchange of validated data between participants in systems, which, to ensure uniformity of their interpretation by all participants in such exchange must comply with a standardized form;

the legal framework should determine the legal aspects of intersystem interoperability and the levels of responsibility of each of the participants in the blockchain system, ie: which jurisdiction is used in disputes, who controls the information and is responsible for its content, security and integrity.

The technical level assumes that for the interoperability of blockchain systems, it is necessary to consider whether these systems are technically compatible and whether the compatibility requirements are met.

Infrastructure layer is a set of components that provides blockchain platform services, which include: computational methods, storage, network type and virtualization. Although interoperability is generally a compatible infrastructure, it is often complicated by certain components offered by cloud providers.

4. Conclusion

1. Digitalization of public administration – service activities of public authorities, introduction of common standards for storage and use of information, unification of databases of public authorities on single information platforms, interoperability of these systems, providing conditions for wide access to them, and is a recognized mechanism of economic growth due to the ability of technology to positively affect the efficiency, effectiveness, cost and quality of economic, social and personal activities. This term is quite new and not always clear to specialists in public administration and administration, but it is important for modern strategic planning and public administration reform in Ukraine.

2. Ensuring rapid use of information, openness and transparency of data will contribute to the development of the economy according to international standards Industry 4.0 – Strategy for the implementation of cyberphysical systems in the production and service of human needs, invented in 2011 in Germany – is a coordinated state initiative to mobilize all national resources in order to accelerate technological change and maintain German leadership in global competition, reform public administration, open and transparent decision-making and implementation, combat corruption, will enable the growth of human potential and competitiveness, as well as accelerate the decentralization process in Ukraine.

3. Modern political, socio-economic and information-communication tools of interaction between the state and society in Ukraine are constantly improving under the influence of new challenges that cause changes in public policy-making processes, which in its evolutionary development requires both rethinking traditional management approaches and applying new ones. service-oriented mechanisms for its formation and implementation.

4. The creation of digital infrastructures is a major factor in expanding citizens' access to the global information environment and knowledge [21]. Thus, serial activity – should focus on the priority of the rights and legitimate interests of individuals and citizens who are customers of public services in a service-oriented state.

5. In 2011, free access to the Internet was recognized by the UN as a fundamental human right – digital law. Thus, the need for access to information about the public service and the possibility of influence and legal support should be provided by the authorities and is the basis of public administration, which, among other things, will provide a real opportunity to counter inefficiencies in management, economic development and corruption. The interaction between public authorities and the citizen should be based on the openness and quality of services provided by the state and is impossible without appropriate technological support, which evolves from informatization to digitalization of public administration and local self-government.

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FORMATION ET DIMENSION DE LA CULTURE DE GESTION DES FONCTIONNAIRES EN UKRAINE : VUE SOCIO-TECHNOLOGIQUE

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Annotation

La formation de la culture de gestion des fonctionnaires implique l'utilisation des technologies sociales qui, par leurs caractéristiques et leurs capacités, contribuent à l'efficacité de ce processus. Ils aident également à résoudre des problèmes difficiles, socioculturels, politiques, éthiques, etc. de gestion de l'activité. L'utilisation des technologies sociales dans le processus de formation de la culture de gestion des fonctionnaires est une sorte de moyen d'introduire la formation, l'éducation, les recherches scientifiques, les données empiriques, les connaissances, les compétences et les capacités pouvant être utilisées dans des activités pratiques de gestion. De plus, c'est une certaine manière de la pensée managériale, qui est utilisée pour identifier les sujets de la culture de gestion comme phénomène socio-politique de la société et de l'État, d'une part, et d'autre part – le processus d'établissement de la culture de gestion des fonctionnaires dans la pratique.

Dans le processus de développement et d'accumulation de la pensée managériale, une direction spéciale de la science de gestion moderne s'est formée, liée à la recherche, à la définition et à la sélection des régulateurs sociaux et managériaux de la formation de la culture de gestion. La tâche de ces régulateurs est de changer le contenu et les activités des objets sociaux, de former les connexions et les relations nécessaires entre eux.

La technologie est généralement inhérente aux activités humaines. Ils sont nés et établis avec l'homme en tant qu'être intelligent et la nature collective de l'activité. Tout d'abord, les technologies se sont concentrées sur la production de biens de consommation, puis les principes technologiques se sont étendus aux autres domaines de l'activité humaine: la production et l'application des connaissances, la reproduction de l'homme lui-même (un exemple de cette technologie est la formation et l'éducation). Aujourd'hui, une nouvelle tâche se pose – techniciser la reproduction de la société et de ses composants individuels.

Mots clés: société, technologies sociales, critères, valeurs, pensée de gestion, connaissances, expérience, compétences.

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1. Introduction

Au cours de son développement séculaire, l'humanité a accumulé un vaste arsenal de technologies diverses. Une place particulière parmi eux est occupée par les technologies sociales. La tâche principale de l'application des technologies sociales est, tout d'abord, la transformation

de la société, les rapports et les relations sociales, politiques, économiques, culturelles, de gestion, les processus socio-politiques, la poursuite de la recherche et l'amélioration des régulateurs de diverses organisations, équipes, les communautés et les groupes, et finalement l'amélioration socioculturelle de l'homme lui-même. Cette formulation du problème est nouvelle, car elle est due au fait que la science de gestion, comme d'autres sciences, dans son développement aborde non seulement des questions scientifiques et théoriques et méthodologiques, mais aussi des applications pratiques, dans notre cas – la formation de la culture de gestion.

L'actualité de l'étude de la formation de la culture de gestion des fonctionnaires dans l'Ukraine moderne en termes d'approche socio-technologique ne doit pas être mise en doute, car il s'agit d'enquêtes sociologiques spécifiques sous forme d'expert et de questionnaire montrent les domaines problématiques les activités pratiques de gestion, qui sont actuellement les plus importantes dans le travail des fonctionnaires.

Le but de cette publication est d'analyser le concept de "technologie sociale", le rôle et l'importance des recherche empiriques dans la formation de la culture de gestion, afin de développer des recommandations pratiques pour les fonctionnaires. Ses principales missions sont: étudier les réalisations des scientifiques de premier plan qui ont été à l'origine du développement des technologies sociales, déterminer les critères inhérents aux technologies sociales, montrer la place et le rôle des régulateurs socio-technologiques dans la mesure de la culture de gestion, argumenter les données des recherches empiriques etc.

En analysant et en découvrant les problèmes actuels de formation de la culture de gestion des fonctionnaires en Ukraine, nous avons utilisé une enquête par questionnaire auprès des étudiants de l'Académie nationale d'administration publique du Président de l'Ukraine (ci-après ANAP) et de l'Institut de la formation permanente des employés de la formation, grâce aux efforts conjoints des scientifiques d'ANAP et de l'Université nationale au nom de Yuriy Fedkovych de Tchernivtsi dénommé (ci-après CHNU) selon le questionnaire «Manières de former la culture de gestion des fonctionnaires: approche empirique» (octobre – novembre 2019, 107 sondés ont été interrogés) et évaluation d'experts (16 étudiants du CHNU ont y participé) selon le questionnaire – Rôle et importance des relations interdisciplinaires des domaines de connaissance «Administration et gestion publique » (mars-avril 2021).

2. L'essence, les critères, l'application des technologies sociales

Le terme «technologie sociale» est apparu lorsqu'une personne a commencé à comprendre et à assimiler le milieu social, l'environnement social. Un rôle important dans l'introduction de la technologie dans la vie sociale a également joué une compréhension de la durabilité, le caractère cyclique des processus de reproduction de l'homme et de la société. En fait, l'application de l'approche socio-technologique, dans notre cas à la formation et à la mesure de la culture de gestion des fonctionnaires, est une manière spécialisée de mettre en œuvre les recherches scientifiques, les données empiriques, les connaissances, les compétences, les capacités et les idées, etc., qui peuvent être utilisées dans la gestion pratique. C'est une certaine manière de la pensée managériale, qui sert à identifier les sujets de la culture de gestion comme phénomène socio-politique de la société et de l'État, d'une part, et d'autre part – le processus de la culture des fonctionnaires dans la pratique.

Les origines de l'étude, la définition de l'essence et la mise en œuvre des technologies sociales dans la vie publique étaient des représentants bien connus de diverses branches de la science: philosophe G. Hegel, gestionnaire-praticien F. Taylor, sociologue et représentant de la pensée managériale M. Weber, représentant de la science de gestion et homme d'État

W. Wilson, historien et sociologue M. Halbwax, politologues F. Pareto et G. Mosca, sociologue E. Giddens et autres. A l'étape actuelle, les technologies de gestion et la formation d'une culture de gestion acquièrent des signes, des caractéristiques et des essences quelque peu différentes. Notons en particulier: la théorie du changement institutionnel et son impact sur la gestion de D. North; renouvellement de l'État et du gouvernement sans bureaucrates D. Osborne et P. Plastrik; approches du nouveau management dans le domaine de la gestion des organisations G. Simon; caractéristiques socio-psychologiques de la gestion de B. Tracy; une nouvelle vision de la politique, de l'économie, de la culture et de la gestion dans le contexte de la mondialisation D. Held ; les nouvelles formes, principes et méthodes, y compris certaines technologies de gestion A. Heuser et autres.

L'application moderne des technologies sociales dans la formation de la culture de gestion des fonctionnaires, qui «représentent une nouvelle façon interdisciplinaire d'utiliser les connaissances et les idées existantes dans la réalité sociale pratique» (*Sappa, 2009 : 51*), comporte un ensemble de critères qui distinguent les activités technologiques par rapport aux autres. Ces critères sont inhérentes aux technologies matérielles et sociales. Citons les principaux:

1. La présence d'une activité transformationnelle, qui implique la transformation elle-même, pas seulement la connaissance de l'objet et, en outre, sépare la technologie de l'activité scientifique. Cette séparation de l'activité transformationnelle de l'activité cognitive sert d'orientation vers l'un ou l'autre objet. Dans le cas de l'activité scientifique et cognitive, son objet est toujours un système de connaissances, d'idées sur les mécanismes de fonctionnement de certains phénomènes (en particulier, la culture de gestion en tant que phénomène socio-politique et de gestion publique – auteur).

2. Définir l'objectif – la technologie agit comme un système d'action approprié. L'objectif est l'un des éléments du comportement humain et de l'activité consciente, qui se caractérise par l'anticipation dans la réflexion sur le résultat des activités et des moyens d'y parvenir par certains moyens (formation de la culture de gestion des fonctionnaires comme objectif ; obtenir des résultats positifs dans ce processus comme un objectif – auteur).

3. Cohérence: l'activité se concentre non seulement sur l'objectif mais aussi sur les conditions externes, tout en ayant les propriétés d'auto-identification et d'organisation (parfois les processus de formation d'une culture de gestion peuvent être spontanés c'est l'influence des médias, des journaux et de la télévision aux réseaux sociaux, qui est difficile à réguler ainsi que les processus organisés de formation de la culture de gestion en tant qu'objet d'administration publique – auteur).

4. L'existence d'un ensemble de méthodes, car l'activité de transformation en technologie doit reposer sur l'utilisation de certaines méthodes disponibles pour la reproduction et celles qui permettent d'atteindre le résultat visé. Sur cette base, on peut affirmer que les technologies sociales sont «un ensemble systémique de méthodes pour changer l'état et les propriétés des objets sociaux ou changer la situation sociale pour atteindre un objectif prédéterminé» (*Sappa, 2009 : 51*).

Les critères ci-dessus, qui sont inhérentes aux technologies sociales et ont les propriétés de dimension sociale (pour nous, la culture de gestion des fonctionnaires) peuvent être utilisés dans la gestion pratique, la formation et la science de gestion, le recyclage des fonctionnaires du gouvernement central et du gouvernement local comme les domaines importants de la culture de gestion, qui sont introduits dans l'enseignement de diverses disciplines administratives, politiques, sociologiques, culturelles, philosophiques, historiques, etc. Par exemple, un régulateur ou un catalyseur efficace du processus de la formation de l'identité nationale et de la conscience nationale chez les fonctionnaires peut être un sentiment de dignité pour leur passé historique,

le respect de leur peuple, la conscience de soi en tant qu'un ukrainien, des sentiments pour leur pays et position civile active. D'autres facteurs sont possibles – le désir de connaître les origines et la formation de la pensée managériale dans le monde et en Ukraine, l'amélioration des compétences de gestion dans la pratique, l'étude d'une expérience de gestion étrangère positive, l'utilisation des qualités de la culture de gestion pour une gestion efficace, l'application de nouvelles technologies, etc.

3. Les régulateurs pour mesurer la culture de gestion

Le régulateur socio-technologique le plus efficace pour mesurer la culture de gestion des fonctionnaires est une étude approfondie du cours de la pensée managériale, de la Grèce antique aux réalisations modernes des sciences de gestion. Des exemples sont : la doctrine de la « mesure en tout » du souverain d'Athènes et de l'homme d'État Solon ; L'« art de gouverner » Socrate et Xénophon; « Cohérence dans la gestion » de Platon ; « Non-abus de pouvoir » d'Aristote et d'autres ; plus tard au Moyen Âge et au début de la Renaissance: forme politique et juridique – le « peuple législateur » du penseur italien M. Paduansky; attitude et verdict du peuple face aux managers du théoricien de la pensée politique et de gestion N. Machiavel; "Liberté de pensée" dans la gestion du philosophe hollandais B. Spinoza et d'autres. De plus, la doctrine de gestion de I. Kant – la gestion ne devrait pas être une coercition, parce que l'homme n'est pas un moyen pour un objectif, mais il est un tel objectif; l'opinion de G. Hegel selon laquelle la culture de la gestion est une activité de maintien de l'ordre, etc. De la fin du XIX^{ème} au début du XX^{ème} siècle: le concept de « facteur humain dans la gestion » N. Vitke ; principes du management scientifique de F. Taylor; la théorie de la gestion administrative d'A. Fayol; le concept de gestion ciblée de P. Drucker; la théorie de la bureaucratie idéale de M. Weber ; théorie des relations humaines E. Mayo et les autres. Enfin, les théories modernes du milieu du XX – début du XXI siècle : théorie des systèmes de la gestion de G. Simon ; le concept d'influences de gestions d'A. Tannenbaum; principes de gestion efficace de T. Peters; le changement global et son impact sur la gestion de D. Held ; la dernière théorie de la gestion de G. Kuntz et d'autres. Aujourd'hui, les idées de gestion des scientifiques ukrainiens dans le domaine de la connaissance de la gestion de l'Ukraine indépendante, dont les principaux chercheurs travaillent avec succès: V. Bakumenko – les recherches théoriques et méthodologique sur les problèmes des décisions de gestion dans l'administration d'Etat; T. Vasylevska – normes éthiques du directeur de l'État; L. Gonyukova – le rôle et l'importance des partis et processus politiques dans l'administration publique; L. Pashko – la culture de gestion comme base des relations de gestions; O. Petroe – développement des questions d'évolution de la gestion de l'État à la gouvernance publique; M. Piren – le rôle de l'éducation dans la formation des professionnels de la gestion ; V. Perzhun – recherche des origines sociales et de gestions de la formation et de l'établissement de la culture de gestion, etc.

Ainsi, l'efficacité de la formation et de l'application ultérieure des critères de mesure de la culture de gestion des fonctionnaires est principalement liée au choix des régulateurs sociaux nécessaires pour atteindre l'objectif et le but, et la qualité de la conception des technologies d'impact nécessaires. Pour atteindre les buts et objectifs fixés, une approche socio-technologique du problème peut être utilisée, ce qui est nouveau manière interdisciplinaire d'utiliser les connaissances et les idées existantes dans la gestion pratique. C'est, en quelque sorte, une nouvelle façon de la pensée managériale, qui vise à rationaliser, changer ou former un système de relations publiques et étatiques, c'est-à-dire résoudre un problème pratique, identifier les régulateurs sociaux existants par rapport à une situation particulière et méthodes pour les faire

fonctionner, qui peuvent être : l'intensité, l'efficacité, la clarté, la profondeur, la compréhension, l'autorité, etc. Par conséquent, la formation réussie de la culture de gestion des fonctionnaires est possible avec le soutien actif des institutions publiques et étatiques et le développement de régulateurs efficaces de ce processus et de critères pour mesurer le niveau de culture de gestion. Ces régulateurs, à notre avis, sont :

- les établissements d'enseignement supérieur, les organisations sociopolitiques, les sociétés à vocation nationale, les instituts de promotion de la fonction publique, les structures organisationnelles de l'administration et de la gestion publique, le pouvoir exécutif à différents niveaux, qui peuvent influencer la formation de la culture de gestion;
- le développement et la mise en œuvre d'un mécanisme normatif de régulation sociale et la formation d'un nouveau système d'administration publique ;
- rationalisation et la régulation des processus organisationnels et spontanés de formation de la culture de gestion des fonctionnaires;
- introduction de nouveaux cours et de cours spéciaux pour les étudiants. Ils peuvent être – l'histoire de la pensée managériale ; sociologie de l'administration publique; nouvelle philosophie de gestion; processus politiques modernes; avis de gestion en Ukraine; nouvelles théories de la gestion publique; culture de gestion : théorie et pratique ; les bases de la gestion dans les collectivités locales, etc.

4. Le processus de formation d'une culture de gestion

Pour étudier le processus de formation de la culture de gestion des fonctionnaires, l'auteur a mené deux études à l'aide d'un questionnaire. Les sondés au questionnaire étaient des étudiants de ANAP et de l'Institut de formation avancée des éducateurs (IFAE) (107 sondés, 2019). Les données de la recherche empirique nous permettent d'étudier et de faire une analyse précise de la formation de la culture de gestion des fonctionnaires en Ukraine.

L'étude « Manières de former la culture de gestion des fonctionnaires: une approche empirique» (*Perzhun, Gonyukova, 2019*) a identifié et a montré l'évaluation des sondés eux-mêmes en termes de compréhension et d'importance pratique de la culture de gestion dans leur travail de gestion. À la question «Quelles qualités de la culture de gestion sont les plus importantes pour un fonctionnaire»? les sondés ont répondu: connaissance de l'industrie, hommes – 80,4, femmes – 82,3%; responsabilité, hommes – 74,7%, femmes – 75,8% ; tolérance, hommes – 73,1%, femmes – 77,8%; transparence, hommes – 67,4 %, femmes – 65,8 %; tolérance et respect des citoyens, hommes – 57,8%, femmes – 59,3% (*Perzhun, Gonyukova, 2019 : p. 17*).

Ces données semblent optimistes. Les sondés comprennent et sont conscients de l'importance de la culture de gestion et identifient les principales qualités, à leur avis, qui devraient être les plus inhérentes aux fonctionnaires dans leur travail.

Dans une autre enquête (Rôle et importance des relations interdisciplinaires des domaines de connaissance «Administration et gestion publique». (*Perzhun, 2021*), qui a été menée en ligne (enquête Internet à distance, 16 sondés – étudiants de 3-5 années de CHNU) en 2021 année à la question: "La culture de la gestion des fonctionnaires fournit, à Votre avis, ce qui suit", on a donné les réponses suivantes: compréhension des changements structurels dans la société ukrainienne – 37,5%; l'importance des principes scientifiques et institutionnels dans la formation de la culture de gestion – 31,3%; déterminants socioculturels approbation de la culture de gestion – 37,5%; défis de la mondialisation d'aujourd'hui – 31,3%; coordination des travaux de toutes les branches du gouvernement – 37,5%; relation efficace et efficiente

entre le gouvernement central et le gouvernement local – 56, 3%; connaissances, expérience, compétences pratiques, professionnalisme – 43, 8%; interaction politique et de gestion entre le gouvernement et les politiciens – 18, 8% (*Perzhun, 2021*).

Bien entendu, ces données ne prétendent pas être complètes, car un petit nombre de sondés ont été interrogés et il s'agit actuellement d'étudiants qui se préparent à de futures activités, éventuellement dans le domaine de la gestion. Mais les tendances de leur compréhension de l'importance de la culture de gestion pour les fonctionnaires sont clairement visibles et c'est un fait positif.

5. Critères de mesure des indicateurs du niveau de culture de gestion

Pour un travail pratique plus efficace sur la formation de la culture de gestion, nous avons étudié, analysé et abordé de manière critique les questions scientifiques et pratiques importantes, nous avons développé des critères pour mesurer le niveau de culture de gestion. Il est également important de noter qu'elles ne sont pas définitives et ne prétendent en aucun cas à l'exhaustivité. C'est notre vision – ce qui peut être mesuré, quels sont les critères du niveau de culture de gestion des fonctionnaires. Ils peuvent et vont probablement changer, être complétés par d'autres caractéristiques, mais nous pensons que tels critères seront les plus utiles pour déterminer le niveau de culture de gestion d'un fonctionnaire public qui s'acquitte avec compétence ou pas tout à fait de ses fonctions. Ces critères et leurs manifestations comprennent: l'attitude envers leur travail (la gestion est une vocation, la responsabilité, la tolérance et l'indulgence, la formation, les connaissances et les compétences de l'industrie, la culture du travail et l'amélioration personnelle) ; indicateurs moraux et éthiques (comportement et actions de l'employé, valeurs sociales, sens de la distance entre le leader et le subordonné) ; caractéristiques juridiques (conscience des limites de gestions de l'activité, connaissance des évolutions structurelles de la gestion, respect des droits et des responsabilités, régulation interne et externe du comportement, formation d'une culture anti-corruption); normes organisationnelles et de gestions (ordre organisationnel, relations saines dans l'équipe, discipline interne, fixation de la charge de travail et exécution claire des tâches); cognition et pensée de gestions (approbation de la culture de gestion des fonctionnaires dans la pratique, amélioration des liens et des relations managériaux modernes, application des connaissances sur la pensée managériale).

Il est important, à notre avis, lorsque l'on considère les problèmes de technicisation de la formation de la culture de gestion, de prêter attention à l'opinion des fonctionnaires eux-mêmes sur leur niveau de culture de gestion.

Les sondés dans le cadre de l'étude «Manières de former la culture de gestion des fonctionnaires: une approche empirique» (*Perzhun, Gonyukova, 2019*) ont posé la question : «Comment décririez-vous le niveau de culture de gestion des fonctionnaires en général?». 53,4% ont noté qu'au moment actuel, les fonctionnaires sont au stade de la formation d'un nouveau type de culture de gestion. Dans le même temps, une partie importante des personnes interrogées – 43,7% étaient d'avis que la culture de gestion des fonctionnaires est presque absente, et 16,9% ont estimé que l'ancien type de culture de gestion est préservé (voir tableau 4.3.4.). Il est intéressant que les sondés qui ont répondu que l'ancien type de culture de gestion reste relativement plus aîné que leurs collègues (*Perzhun, Gonyukova, 2019 : p. 19*).

Le fait le plus préoccupant est que près de 45 % des personnes interrogées ont clairement indiqué que la culture de la gestion est absente chez les fonctionnaires modernes. Ce fait alarme et confirme notre point de vue sur un certain manque de signes sains et de qualités de culture de gestion chez nos employés, managers, dirigeants, politiciens, etc. et l'urgence supplémentaire

d'un travail efficace sur la formation de la culture de gestion des représentants des structures de gestion en Ukraine. Cette affirmation est confirmée par les réponses des agents publics à la question : «Quelles sont, à votre avis, les raisons d'une culture de gestion faible ou inexistante?». Les personnes interrogées mettent en premier lieu : les conséquences "post-soviétiques" et les vestiges de l'administration publique – 60,4%. Parmi les raisons sont également citées : la réticence des fonctionnaires eux-mêmes à changer quelque chose, tandis que la situation actuelle dans le domaine de la culture de gestion leur convient» – 41,3 % ; la complexité de la situation politique et administrative en Ukraine, qui affecte l'établissement d'une culture de gestion – 39,7%; faible niveau général de culture des fonctionnaires – 36,9% ; possibilité insuffisante d'acquérir de nouvelles connaissances de la pensée managériale, niveau parfois faible de l'enseignement de la gestion et des autres disciplines – 14,5% ; il n'est pas toujours possible de suivre une reconversion professionnelle dans un établissement d'enseignement spécialisé, par exemple ANAP – 22,8% (*Perzhun, Gonyukova, 2019 : p. 20*).

6. Conclusions

Les recherches empiriques et sociologiques nous permettent de développer quelques approches, conclusions et propositions socio-technologiques pour la formation de la culture de gestion des fonctionnaires. La première chose que je voudrais noter est que la culture de gestion n'est pas seulement l'accumulation de connaissances, mais aussi leur utilisation habile dans la pratique. La deuxième remarque importante est que les processus et les approches de formation de la culture de gestion des fonctionnaires montrent une tendance contradictoire : d'une part – il y a un besoin de formation pratique d'une culture de gestion mature, et d'autre part – l'utilisation non complète de potentiel dans sa formation, mais parfois comme le notent les sondés eux-mêmes les fonctionnaires ne sont pas toujours prêts pour d'éventuelles réformes tant dans la gestion que dans les changements d'approches pour l'établissement et l'adoption d'une nouvelle culture de gestion.

Dans le processus d'application des approches socio-technologiques à la formation de la culture de gestion des fonctionnaires, il est nécessaire d'utiliser plus efficacement les opportunités des établissements d'enseignement supérieur, des cours du recyclage des fonctionnaires d'Etat, des scientifiques traitant des questions d'administration publique, de politique, de gestion publique et de gestion des ressources humaines, des gestionnaires pratiques et des politiciens, organiser des conférences, des tables rondes, des discussions, des formations, etc. Cela sera facilité par l'utilisation de technologies sociales telles que : l'introduction de nouvelles méthodes d'enseignement de la gestion, des sciences politiques, de la sociologie, de la philosophie, de la culture, qui révéleront aux étudiants leurs connaissances en gestion et les caractéristiques et les qualités de la culture de gestion ; compréhension et attitude envers les réformes modernes; participation éventuelle des fonctionnaires aux réformes administratives ; développement par les enseignants de nouveaux cours spéciaux sur la gestion d'Etat (publique): «La culture de la gestion en Ukraine: histoire et modernité», «Dernières réalisations de la pensée mondiale de la gestion», «Nouvelle gestion publique: problèmes de formation et de préservation», «Gestion des ressources humaines», «Gestion de projet», «Gestion stratégique» et d'autres visant à former la culture de gestion des fonctionnaires ; augmenter les exigences en matière d'éducation et de culture individuelles en gestion, en droit, en politique, en culture d'un fonctionnaire public, etc.

Le processus de formation de la cognition et de la pensée socio-politique et de gestion, sur la base duquel les besoins et les compétences de reconstitution de son bagage théorique,

sa compréhension critique et sa corrélation avec la dynamique des processus sociaux, économiques, politiques, culturels, managériaux, est insuffisant pour les fonctionnaires, se produisent aujourd'hui dans la société et dans l'État. Les connaissances, l'expérience sociale et managériale et les compétences acquises par de nombreux fonctionnaires ne trouvent pas toujours leur application dans la pratique. Ainsi, pour fournir des conditions appropriées au travail des scientifiques dans le domaine de l'administration publique, des gestionnaires, des fonctionnaires, leur participation à l'élaboration de recommandations et propositions spécifiques sur les plans économique, social, politique, culturel, managérial est urgent. En d'autres termes, les fonctionnaires, en particulier les jeunes, ont besoin de voir la perspective, et s'il y en a, ils pourront se réaliser pleinement.

De manière générale, en résumant les problèmes d'approches socio-technologiques de la formation et de la mesure des critères de la culture de gestion des fonctionnaires, il convient de noter que la modernité avec ses situations conflictuelles et ses contradictions nécessite de trouver et d'approuver de nouvelles technologies et méthodes sociales, des justifications théoriques et des étapes pratiques pour la gestion, les activités, la formation, l'éducation et la formation d'une nouvelle génération de fonctionnaires de l'Ukraine moderne. Le problème reste ouvert et nécessite une enquête plus approfondie. Il existe des opportunités potentielles pour cela, car la vie ne s'arrête pas, elle change et, avec elle, change les technologies sociales, les approches, les méthodes, les principes, les principes spirituels et moraux de formation et d'approbation de la culture de gestion des fonctionnaires en Ukraine.

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LEGAL FORMS OF STATE PARTICIPATION IN CIVIL RELATIONS**Viktoriia Piddubna**

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Summary

The article deals with the study of legal forms of state participation in civil relations. Today, an unresolved and complex issue is the existence of the legal personality of the state as a legal entity and state bodies for participation in property relations. The legal nature of the state and state bodies is analyzed. The article deals with the issues of direct participation or indirect participation of the state and state bodies. The legal forms of participation of the state in the creation of legal entities of public law, the creation of legal entities of private law, as well as the participation of the state in the activities of created legal entities are investigated. The article emphasizes that the types of legal entities of public law created by the state should be distinguished. State bodies vested with public authority and state institutions, which may have separate powers of authority. The article analyzes the signs of a state body and gives the author's conclusion about the participation of state bodies in civil circulation. The article examines the issue of the rights of legal entities of public law, in particular, the article emphasizes the need to replace the existing "quasi-speech" rights: the right of operational management and the right of economic management, as such that do not correspond to the principles of a market economy. It is proposed to replace these rights with market instruments in the form of organizational and legal forms of joint-stock and other companies, various types of contracts, private law structures of rights. The article in the historical aspect examines the legal approaches to the definition of the legal nature of the state. The issues of the concept and types of state bodies, their signs, features of the legal status and participation in civil legal relations are considered. The legal status of the legal entity of private law of PJSC Ukrzaliznytsia is analyzed and it is necessary that the creation and regulation of the activities of this legal entity takes place in accordance with the Law of Ukraine "On Joint Stock Companies". But there is another scientific position that PJSC "Ukrzaliznytsia" belongs to legal entities of public law. And since today there are no clear criteria for distinguishing between these legal entities, this issue should be clarified in order to resolve practical issues that arise in the activities of such legal entities.

Keywords: state, state bodies, legal entity of public law, subjects of public law, state joint stock companies

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1. Introduction

Today in Ukraine there are no comprehensive theoretical studies of subjects of public law (the state, the Autonomous Republic of Crimea, territorial communities) as participants in civil relations. The concept of “state” in legal literature is used in both broad and narrow sense. So, in a broad sense, a state is understood as a power-organized society, in a narrow sense – a system of institutions of public power, a government apparatus. The state, unlike other subjects or participants in civil relations, has two main features: public power and sovereignty. In the legal literature regarding the participation of the state in civil relations, the following issues are debatable: 1) whether or not the state has civil legal capacity and legal capacity; 2) whether civil legal capacity and legal capacity are necessary to participate in civil circulation or whether public authority and sovereignty are sufficient prerequisites; 3) determination of persons and mechanisms through which the state participates in civil relations; 4) definition of the concept and characteristics of legal entities of public law; 5) the establishment of the specifics of the regulation of liability as a consequence of its participation in civil relations. Such famous scientists as I.V. Spasibo-Fateeva, V.I. Borisova, Yu.M. Dzera, O.O. Pervomaiskiy, Yu.N. Andreev, D.V. Pyatkov. The aim of the study is to clarify the legal nature of the state, the state has a civil personality, types of legal forms of state participation in civil relations. The following methods were used for research in the article: dialectical, logical, historical, comparative.

2. Civil legal capacity of the state

About whether the state has civil law and legal capacity, then in the science of civil law this issue is debatable and does not have an unambiguous solution. So, according to some scientists, the state can be considered a legal entity (*Chirkin, 2007: 131*), others deny this position (*Golubtsov, 2008:82*). Thus, an important and complex issue on the definition of the legal status of the state as a participant in civil relations is not resolved either at the doctrinal level or at the legislative level, which has as its consequence uncertainty with many areas of state participation in civil relations. At the same time, the state of Ukraine, the Autonomous Republic of Crimea, territorial communities, foreign states and other subjects of public law are participants in civil relations (*Article 2 of the Civil Code of Ukraine*). If these subjects are participants in civil relations, they must have legal capacity. So, in the opinion of Spasibo-Fateeva I.V. “... the state participates in civil legal relations, in particular property, not only in a static plane (property right) but also in a dynamic one (when objects of state property rights are alienated by means of their privatization). In this case, the question arises as to how the state participates in private relations? In our opinion, the only opportunity remains for her is to become the same subject of civil law ” (*Spasibo-Fateeva, 2006: 96-107*). At the same time, the legal capacity and capacity of the state as a subject of public law has its own characteristics. These features are, firstly: the presence of public power and sovereignty.

3. Historical preconditions for the formation of the concept of the state

Even in Roman law, among the types of legal entities, a state is indicated that had legal capacity and took part in civil circulation in the form of a fiscal (treasury). Analyzing Roman sources, the legal literature indicates that without a direct definition of the law, the fiscal cannot claim any privileges, but is subject to common law, that is, it can be concluded that the state took part in civil circulation in the form of a fiscal (treasury), was equated to private individuals

and had an equal legal status with other participants in civil turnover. But the fiscal (treasury) had certain privileges in comparison with other participants in the turnover (*Baron, 1898: 72*).

In Soviet times, views on the legal nature of the state did not have an unambiguous approach. So, according to A.V. Venediktov, the state is not a legal entity, a state body is a legal entity, at the same time, according to a state body, the state is the owner of the property due to this legal entity. The state can act as a legal entity in foreign trade, but this is more the exception than the rule. Bratus S.N. opposing this approach, he believed that the state is a legal entity in civil circulation and can take part in property relations as a treasury, and not only in foreign trade operations but also within the country (*Bratus, 1947: 110*).

This discussion regarding the legal nature and forms of participation in civil legal relations of the state and other subjects of public law continues today. As indicated in the legal literature, the definition of the legal nature and status of the state depends on the decision by national legislation of the issue of the model of state participation in civil relations. In modern civil law literature, two models of state participation in relations regulated by law are distinguished, these are “monistic” and “pluralistic”. The monistic model understands cases when the state, with its participation in civil circulation, is recognized as a legal entity of public law. This model is typical for Western Europe and some CIS countries. The pluralistic model understands situations when the state, when participating in the appeal, is not recognized as a legal entity, and on behalf of the civil rights and obligations are acquired by state bodies acting in the appeal independently (*Golubtov, 2008: 62*). This model is typical for Ukraine, Russia and other CIS countries. Thus, the state acquires and exercises civil rights and obligations through state authorities within the limits of their competence established by law (part 1 of article 170 of the Civil Code). The state acts in civil relations on equal terms with other participants in these relations (part 1 of article 167 of the Civil Code). That is, the state can act in civilian circulation both directly and indirectly through state authorities.

In Western countries, state participation in civil relations has different models. So, in the United States and England, public law formations do not have the characteristics of a legal entity, and the bodies that act on behalf of the authorities are legal entities (authorities and administration). In the field of civil relations, state bodies of all branches of government are subordinate to the actions of contract law, and applies to individuals. In France, in civil law there is no concept of “public education”, the concept of subjects of public law (state, local societies) is replaced by the concept of “public service” and “public organization”. The state and local societies are endowed with the status of a legal entity and are subjects of exclusively administrative-legal relations; they are not participants in civil relations. Local authorities are limited in their powers to conclude economic contracts (*Golubtsov, 2013: 62*).

4. Forms of state participation in civil relations

In the legal literature, there are two main forms of participation in civil relations: the first form is the creation by the state of legal entities of public and private law (part 2, part 3 of article 167 of the Civil Code). This form is conventionally referred to as “constituent” or “constituent”. The second legal form of participation of the state in civil relations is participation in the activities of legal entities of private law created by the state. This form is defined as “managerial” or “corporate”. (*Spasibo-Fateeva, 2020: 897*).

According to the organizational and legal forms in which the state can create legal entities of public law, this list is open today. So, the state can create legal entities of public law (state enterprises, educational institutions, etc.) in cases and in the manner established by the

Constitution of Ukraine and the law (part 2 of article 167 of the Civil Code). As correctly indicated in the doctrine of civil law, legal entities of public law can be created both in an administrative order (part 2 of article 81 of the Civil Code), and in the manner that is established in the law, that is, on the basis of a regulatory legal act. For example, in part 2 of Art. 125 of the Constitution of Ukraine states that “the court is formed, reorganized and liquidated by law.” The state can create authorities, which are endowed with the status of a legal entity of public law. So, according to Part 1 of Art. 4 of the Law of Ukraine “On Central Executive Bodies” dated 17.03.2011, Ministries and other central executive bodies are legal entities of public law. The formation, reorganization and liquidation of ministries and other central executive bodies is carried out by the Cabinet of Ministers of Ukraine on the proposal of the Prime Minister of Ukraine (Article 5 of the Law of Ukraine “On Central Executive Bodies”). The procedure for creation, reorganization and liquidation was approved by the Resolution of the Cabinet of Ministers of Ukraine dated 20.10.2011 No. 1074.

Among the central bodies of executive power, which are legal entities of public law, the following are distinguished: ministries and other central bodies of executive power. The latter include the Antimonopoly Committee of Ukraine, the State Property Fund of Ukraine, the National Commission for State Regulation in the Spheres of Energy and Utilities, the State Committee for Television and Radio Broadcasting of Ukraine. After analyzing the law and regulations on these types of central executive bodies, it can be indicated that each of them performs a certain function of the state in a particular area of regulation of public relations. So, for example, the main tasks and functions of the Antimonopoly Committee of Ukraine are the implementation of state control over compliance with legislation on the protection of economic competition, prevention, detection and suppression of violations of legislation on the protection of economic competition (Article 3 of the Regulation “On the Antimonopoly Committee of Ukraine” dated 26.11.1993 No. 3659-XII). The main tasks of the State Property Fund of Ukraine include: implementation of state policy in the field of privatization, lease, use and alienation of state property, as well as in the field of state regulation of property valuation, property rights and professional appraisal activities (Article 4 of the Law of Ukraine “On the State Property Fund Ukraine” dated 09.12.2011 No. 1052-IX). The powers of the State Property Fund of Ukraine include the development of draft laws and other regulatory legal acts. Financing and material and technical support for the activities of ministries and other central executive bodies is carried out at the expense of the State Budget of Ukraine (Article 25 of the Law “On Central Executive Bodies”). As a rule, the activities of central executive authorities are directed and coordinated by the Cabinet of Ministers of Ukraine. In their activities, these bodies are guided by the Constitution of Ukraine, the laws of Ukraine, acts of the President of Ukraine and other acts of legislation of Ukraine. Regarding the simultaneous endowment of these bodies with the status of a legal entity of public law, then in the doctrine of civil law this issue is debatable. So today the very concept of the concept of “legal entity of public law” is only being formed, the essential features of this concept are being determined. As indicated in the literature, “the specificity of the legal personality of state bodies lies in the fact that they are not legal entities in civil circulation, but act as subjects with the rights of a legal entity, the scope of which is determined by the existing legal order, based on public tasks, goals, interests of the state, society and municipalities. ... There is another position regarding the relationship between the concepts of “state body” and “legal entity”.

There is another position regarding the relationship between the concepts of “state body” and “legal entity”. So, according to N.V. Kantor, the figure of a legal entity of public law will allow to qualify any action of a state body in civil circulation as an action of a corresponding

public law entity and will create the personification of each individual body as a subject of private law to meet “administrative needs” (*Kantor, 2005: 108-114*).

In our opinion, state bodies are not legal entities in their pure form in accordance with the concept, which is enshrined in Art. 80 of the Civil Code of Ukraine: a legal entity is an organization created and registered in accordance with the procedure established by law. A legal entity is endowed with legal capacity and legal capacity, it can be a plaintiff and a defendant in court. Since, firstly, any state body is created and acts on the basis of either an administrative act or a regulatory legal act for the implementation of any function of the state or to satisfy the public interest; secondly, the rules on state registration do not apply to public authorities; thirdly, state bodies do not require the organizational and legal form established for other legal entities; fourthly, state bodies can act in civil circulation both on behalf of the subject of public law and on their own behalf; fifth, the principle of the freedom of contract is not manifested in the activities of the authorities within the limits of civil law; sixth, it is not the concept of legal personality that is characteristic of state bodies, but the concept of “competence” (*Talapina, 2011:80-115*). Thus, after analyzing all of the above, we can come to the conclusion that state bodies can be endowed with the status of a legal entity to participate in property relations.

The state, represented by its authorities, can also create such legal entities of public law as state unitary or commercial enterprises (Articles 73, 74) and state enterprises (Article 76 of the Civil Code of Ukraine). Such legal entities can be created only by state authorities (central and local) within the competence provided by the current legislation of Ukraine. The legal basis for the creation of such legal entities is a number of norms of the Civil Code, Civil Code, the Law of Ukraine “On the Management of Objects of State Property Rights”. When these enterprises are created, the latter are endowed with certain property to carry out their activities. The owner of this property is the state of Ukraine, and therefore such property is transferred to a created legal entity or on the basis of the right of economic management (Article 136 of the Civil Code) or operational management (Article 137 of the Civil Code). On the right of economic management and the right of operational management, today the legal nature and consolidation of these rights are criticized by the majority of the scientific community. So, according to the Concept for the recodification of the Civil Code of Ukraine, it is planned to abandon these rights, since these rights are relics of the socialist past, artificially created for the needs of the nationalized economy. Quasi-speech rights of the Soviet era cannot be used in a market economy, when the state and other legal entities of public law act in civil relations on equal terms with other participants. Therefore, in the interests of economic growth, “Soviet” structures should be replaced by market instruments in the form of organizational and legal forms of joint-stock and other companies, various types of contracts, private law structures of rights (*Civil Code Renewal Concept, 2020: 24-25*).

The state can also take part in the civil turnover through the creation of state institutions. State institutions include, in particular, the following: health care institutions, educational institutions, centers and others. As it is correctly indicated in the legal literature, one cannot equate the concept of a state institution (institution, center) and a public authority. State institutions are not organs of state power, although in accordance with the law they can be vested with separate powers. The creation and operation of state institutions as legal entities of public law is regulated not by the Civil Code of Ukraine, but by the Constitution and laws of Ukraine. State institutions are not the owners of the property under their jurisdiction. The property of state institutions is state property. State institutions have state property on the basis of the right of operational management, and therefore, as a general rule, the decision on the disposal of this property is made by the state represented by the relevant authority.

The state can create legal entities of private law (entrepreneurial societies, etc.) in cases and in the manner prescribed by the Constitution of Ukraine and the law (part 3 of article 167 of the Civil Code). As follows from this article, the list of organizational and legal forms of legal entities that a state can create is open. The most common organizational and legal form that is used by the state when creating legal entities of private law is a joint-stock company. So, for example, this can happen through corporatization (corporatization) of already existing enterprises. According to the Law of Ukraine dated 23.02.2012 No. 4442-VI "On the peculiarities of the formation of a joint stock company of public railway transport" it is indicated that the company is formed as a joint stock company, 100 percent of whose shares are fixed in state ownership, on the basis of the State Administration of Railway Transport of Ukraine, as well as enterprises, institutions and organizations of public railway transport, reorganized through a merger. The Charter of the Society is approved by the Cabinet of Ministers of Ukraine, the founder of the Society is the state represented by the Cabinet of Ministers of Ukraine. All of the above gave reason to scientists to classify PJSC "Ukrzaliznytsia" as legal entities of public law. We believe that the Public Joint Stock Company "Ukrzaliznytsya" is formed in accordance with the Law of Ukraine "On Joint Stock Companies". According to parts 2, 3 of the Law "On Joint Stock Companies" (hereinafter referred to as the Law), the activities of state joint stock companies and state holding companies, the sole founder and shareholder of which is the state represented by authorized state bodies, is regulated by the Law, taking into account the specifics provided for by special laws. The activities of the State Management Holding Company, state holding companies and state joint stock companies, the sole founder and shareholder of which is the state represented by authorized state bodies, is regulated by the Law of Ukraine "On Joint Stock Companies", taking into account the specifics stipulated by special laws.

5. Conclusions

Subjects of public law (state, Autonomous Republic of Crimea, territorial community, foreign states and others) in their activities implement public goals and objectives through indirect participation through state bodies. State authorities are classified as legal entities of public law. The peculiarity of the legal personality of which is that they have a dual legal nature: they are endowed with power and competence and at the same time have civil legal capacity to participate in civil relations. The legal forms of participation of the state in civil relations are the creation of legal entities of public law, among which are state authorities (central and local), state enterprises, educational institutions); the creation of private legal entities and take part in the activities of the latter.

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RISKS OF LAND MARKET FUNCTIONING AND THEIR PREVENTIVE MEASURES

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Summary

In the article, the author examines the current state of completion of land reform in order to clarify the biggest problems related to the opening and further functioning of the free land market in Ukraine, as well as the search for effective preventive measures against possible risks. Emphasizing the value of land as a resource for the full economic and social development of the country, the author emphasizes the importance of efficient and rational use. In this regard, the most important risks of market relations have been highlighted, such as insufficient solvency of future farmers, possible monopolization of agriculture by agricultural holdings, difficult conditions for lending to agricultural needs, lack of effective state regulation of land sales, etc. As a result of the research, the Article highlights and substantiates ways to minimize risks.

These include mandatory state financial support for farmers, including newly incorporated farms, the need to create a credit infrastructure focused on servicing the agricultural economy, accelerating the process of determining the regulatory monetary valuation of each land that will become a commodity in the land market, and the need to improve mechanisms of state regulation of land relations. The Article also analyzes the current regulations governing relations in this area, as well as the positive experience of foreign countries.

Keywords: state regulation, land relations, farms, land sale, state support, crediting.

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1. Introduction

The launch of the land market in Ukraine in July this year raises the issue of effective public administration in the field of land relations, as land in our country with an agro-industrial economy is a powerful financial asset.

Thus, the rational use of land and income from it affect the economic growth of the country as a whole and each individual farm. Proper land administration is a major factor in employment, particularly in the country's agricultural regions, improving welfare, and combating labor emigration as a result of establishing political stability in the country.

In this regard, the study of possible risks, problems of the land market functioning in order to prevent or minimize them by taking balanced steps along the lines of the ongoing land reform is becoming extremely important.

Researchers such as R. Bezpalko, I. Bystriakov, Yu. Bilyk, D. Hnatkovich, O. Hutorov, A. Danylenko, B. Danylyshyn, O. Datsii, D. Dobriak, S. Dorohuntsov, O. Dorosh, O. Yevhraf, P. Kazmir, M. Koretskyi, M. Latynin, M. Stupen, A. Tretiak and others devoted their works to the study of general theoretical issues of land management and land development, as well as to the issues of land relations reform.

However, so far, the possible risks of the first stage of opening the land market have not been specified and no ways to avoid or minimize them have been proposed (preventive measures).

This was the purpose of the study, the results of which are set out in the Article. For this purpose, the current legal framework, which is the basis of the legal mechanism of state regulation of land relations, the positive experience of foreign countries with developed and stable land markets, statistics of the State Service of Ukraine for Geodesy, Cartography and Cadastre, the work of scientists has been studied and analyzed. In the course of work the general methods of research (analysis and synthesis, induction and deduction, generalization), and also methods of theoretical research (convergence from abstract to concrete) are used.

2. General characteristics of the current state of land relations

Market land relations in Ukraine have two components: the market of non-agricultural land, which includes, first of all, land for construction, maintenance of buildings and under buildings, and the market of agricultural land, where land is the basis of production and participates in food creation. According to the State Service of Ukraine for Geodesy, Cartography and Cadastre for the precious 2020, 3151 non-agricultural land plots with a total area of 2076.34 hectares have been sold. The State received 1,540.7 mln UAH from the sale (*State Service of Ukraine for Geodesy and Cartography, 2021*).

At the same time, agricultural lands are of the greatest value, the efficient use and disposal of which are a factor in the full economic and social development of the country.

Thus, the total land area in Ukraine is 60.4 mln hectares. Therefrom, 70% – 42.4 mln hectares are agricultural land, of which more than 32 million hectares are cultivated annually. For comparison, in Poland, agricultural production involves half the area – 14 mln ha, in Germany – 12 mln ha, in Romania – 9 mln hectares. The amount of black soil in Ukraine is the largest in the world and is 28 mln hectares (*State Service of Ukraine for Geodesy and Cartography, 2021*).

That is why proper state regulation of agricultural land is a priority. For almost 30 years, in Ukraine, land relations are being reformed through their gradual transformation into a market one. The last 5 years have been "breakthrough" in the formation of the main components of the land market, namely: the creation of an appropriate legal framework, the process of land formation as an object of purchase and sale through gradual registration of land plots has started, the process of decentralization of land relations and land inventory has started, the mechanism of land electronic auctions has introduced, access to land information was facilitated, including through the introduction of a public cadastral map, etc.

Currently, the State is on the verge of opening the agricultural land market. Thus, in accordance with the Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on the Circulation of Agricultural Land" dated 31.03.2020 No. 552-IX since July 1, 2021, citizens of Ukraine have the right to own agricultural land up to 100 hectares, and since January 1, 2024, such an opportunity will be given to legal entities owned by Ukrainians. They will be able to buy up to 10,000 hectares of land (*Verkhovna Rada of Ukraine, Law No. 552-IX, 2020*).

At the same time, there are categorically opposite positions in the society regarding the sale of these lands due to the presence of certain risks and problems related to the functioning of the land market.

3. State support of farming as a preventive measure for the monopolization of the land market

One of these is the risk of concentrating large areas of agricultural lands owned by companies-landowners. The so-called "latifundists", who will use the labor of peasants for meager wages. This will have a negative impact on the social situation of the latter and may provoke the outflow of able-bodied citizens from agricultural regions of the country to industrial or abroad in search of a better life.

In order to counteract the process of monopolization of agriculture by agricultural holdings, the Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on the Circulation of Agricultural Land", as already mentioned, legal entities registered in Ukraine are allowed to buy land only since January 1, 2024 and no more than 10 thousand hectares of land.

Thus, the legislator gives priority right for the election and acquisition of land plots to citizens. At the same time, according to the provisions of this Law, citizens of Ukraine, who have the right of permanent use, the right of lifelong inherited ownership of land plots of state and communal property intended for peasant (farmer) economy, as well as tenants of land plots that have acquired the right to lease land plot by re-issuing the right of permanent use in respect of these land plots until 2010, have the right to purchase such land plots in the property with installments of up to ten years at a price equal to the normative monetary value of such land plots, without holding land auctions. In the case of purchase of land plot with installment payment, ownership passes to the buyer after payment of the first payment (*Verkhovna Rada of Ukraine, Law No. 552-IX, 2020*).

It should be noted that the purchasing power of citizens due to the unsatisfactory level of income in the agricultural sector, the general economic crisis in the country, exacerbated by the ongoing armed conflict in the east, a pandemic and other factors, is extremely low. In order to provide state support for farming, the draft Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine Concerning Stimulation of Farms' Activities" No. 4046 dated 03.09.2020 was sent to the Verkhovna Rada of Ukraine, which introduced significant amendments to the Law of Ukraine "On Farming".

According to this draft legislation, farms, including newly incorporated ones in the period of formation (the first three years after its incorporation), are provided with assistance from the state, as well as from local budgets. For this purpose, the Cabinet of Ministers of Ukraine should annually provide funds in the draft State Budget of Ukraine to support farms, and local executive bodies and local governments in draft local budgets.

In addition, additional state support is provided to family farms, in particular for the payment of a single contribution to the obligatory state social insurance.

The farm, the head of which is under the age of 35 (inclusive), is provided with financial assistance at the expense of the state budget in the amount and manner established by the Cabinet of Ministers of Ukraine.

Financial support will also be provided through the Ukrainian State Farm Support Fund, including in cases provided by law on a non-refundable basis and in the form of guarantees, sureties for lending by banks to farms (*Verkhovna Rada of Ukraine, draft Law 4046, 2020*).

The Cabinet of Ministers of Ukraine in the state budget for 2021 provided 4.7 bln UAH to support the agro-industrial complex, which is 700 million more than in 2020. It is expected that about 9,000 agricultural enterprises will receive assistance.

By its Resolution of 07.02.2018 No. 106 (as amended on 21.04.2021), the Cabinet of Ministers of Ukraine approved the Procedure for using funds provided in the state budget to

provide financial support for the development of farms, which defines the mechanism for using funds provided in the state budget under the program "Financial support for agricultural producers". Thus, financial assistance is provided in the form of partial reimbursement of costs to farms related to the provision of agricultural advisory services (except for newly incorporated); financial assistance for newly incorporated farms to receive agricultural advisory services; budget subsidy up to UAH 5,000 per unit of arable land (1 hectare) to newly incorporated farms; a special budget subsidy for keeping cows of all areas of productivity to a farm, which owns five cows, identified and registered in accordance with the law (*Cabinet of Ministers of Ukraine, Resolution No. 106, 2018*).

4. Lending in the agricultural sector

Activities in the agricultural sector are not possible without lending. For the stable functioning of the production process, farms need material and financial resources. First of all, it is accumulated own funds. However, if we consider the expansion of the economy through the acquisition of land and the increase, in this regard, the cost of machinery, fuels, seeds, fertilizers or the creation of farms for the first time, the need for credit for the farmer is undeniable.

Therewith, there are also certain risks. In Ukraine, there is no specialized bank for lending, namely, the needs of agriculture, which should take into account the duration of lending for this type of activity, conditions and features of production, including its risks due to high probability of financial instability, insurance costs in agricultural production etc. For example, such an institution in one form or another functions effectively in France, the Netherlands, Hungary, Belgium, Denmark, Germany and other countries (*Hudz, 2003*).

On the other hand, not all farmers, including newly incorporated ones, have proper experience of cooperation (credit history) with commercial banks, and also have property of sufficient value as collateral to obtain a loan. In addition, commercial banks do not provide long-term loans, which are necessary for the optimal development of farms. They are also not interested in providing so-called "credit vacations" due to force majeure (sharp rise in energy prices, lower prices for agricultural products, lack of income due to crop failure, natural disasters, personal circumstances, etc.), but reserve the right to change the terms of payment of the loan unilaterally. Such a provision will not allow citizens to fully exercise their legal right to purchase land and create an efficient farm.

Certainly, the State takes certain measures to amortize these risks. For 2021, the budget program "Financial support for agricultural producers" in the area of "Financial support for measures in the agro-industrial complex by reducing the cost of loans" provides 1.2 bln UAH.

The total amount of loans that has already been attracted by enterprises – 7.9 bln UAH, of which preferential (subject to compensation) – UAH 7.3 bln UAH, including:

- by types of loans:
 - short-term: – 2,4 bln UAH (33,1%);
 - medium-term – 2,6 bln UAH (35,2%);
 - long-term – 2,3 bln UAH (31,7%);
- by type of activity of borrowers:
 - livestock sector – 1,3 bln UAH (17,6%);
 - other sectors – 6,1 bln UAH (82,4%).

The average interest rates of banks, at which the subjects of the agro-industrial complex attracted loans, were 14-16% per annum. Currently, 24 commercial banks have participated in the provision of compensation for loans (*Information and Analytical Portal of AIC, 2021*).

Compensation is provided to borrowers for accrued and paid interest on loans use in the current year in the amount of 1.5 of the discount rate of the National Bank, effective on the date of accrual of interest, but not more than the amounts provided by loan agreements, reduced by 5 percentage points. The amount of compensation provided to borrowers and related persons during the budget year on short-term, medium-term and long-term loans may not exceed UAH 15 mln UAH for borrowers working in the livestock sector, for other borrowers – not more than UAH 5 mln UAH (*Cabinet of Ministers of Ukraine, Resolution No. 300, 2015*).

As can be seen from the above, the State has already created a certain organizational and administrative mechanism to support farmers. However, with the start of land circulation, it will not be able to operate effectively, including due to the significant burden on the country's budget. Therefore, without rejecting the need for state financial support for cheaper loans, the gradual transition from preferential lending for one-time measures to credit support for the agro-industrial sector as a whole should be considered. This involves the creation of an appropriate agreed system of credit security of economic entities on a competitive basis, taking into account the objective characteristics of the industry. The elements of such a system should be a credit infrastructure focused on servicing the agricultural economy; mechanism of credit relations with commercial banks; non-bank lending mechanism (*Demianenko, 2014*).

5. Monetary valuation of land plot

Another important issue at the first stage of land market opening is the definition of a real and adequate regulatory monetary valuation of land plot. Whereas, in accordance with the requirements of the Law of Ukraine "On Amendments to Certain Legislative Acts of Ukraine on the Circulation of Agricultural Land" the value of agricultural land plot, as the subject of the sale agreement, is equal to its regulatory monetary value. Section X "Transitional Provisions" of the Land Code of Ukraine is supplemented by paragraph 22, according to which until January 1, 2030, the sale price of agricultural land allocated in kind (on the ground) to owners of land shares (units) may not be less than their normative monetary valuation (*Verkhovna Rada of Ukraine, Law No. 552-IX, 2020*). According to the State Service of Ukraine for Geodesy, Cartography and Cadastre, as of 01.04.2021, the normative monetary assessment has not yet been conducted on 15,906 land plots (*State Service of Ukraine for Geodesy, Cartography and Cadastre, 2021*).

That is, the State faces the task of developing not only a transparent and clear mechanism for monetary valuation of land plot to avoid both land speculation and prevent the purchase of fertile land at knockdown price, but also to ensure effective control over market turnover. Currently, there is no special institution in Ukraine with state regulation of the agricultural land market, such as the Agency for Land Management and Sales in Germany, the Agency for Agricultural Real Estate in Poland or the Agency for Land Management and Rural Development in France (*Suprun, 2019*). In our opinion, the experience of these countries in creating such an institution is quite acceptable for Ukraine.

6. Conclusions

The present time is characterized by active steps of the State towards the completion of land reform. At the same time, the formation and establishment of the market circulation of agricultural land is characterized by certain challenges to the proper state regulation of the land market, which will start working in the near future. The first stage of the functioning of the land

market will be characterized by the realization by Ukrainians of the right to own agricultural land. This process involves certain economic, financial and social risks.

First, the purchasing power of Ukrainians during the economic crisis, burdened by a prolonged pandemic, rising energy tariffs, political instability is not sufficient and requires significant state financial support. It should be noted that the State also needs to solve the social and infrastructural issues of villages and settlements in order to prevent the outflow of the working population from the regions where farming should develop. This is of great importance for the formation of the land market, the subjects of which at the first stage are citizens, not large agricultural holdings. The so-called "village-preserving" policy, which promotes family-type farming, will minimize the risks of concentrating large areas of agricultural land owned by companies-landowners.

Second, lending is not an integral part of market land relations. The current procedure for lending to agricultural producers is not sufficiently adapted to market relations and needs significant revision. Apart from the state budget program aimed at reducing the cost of loans, there are no financial and credit mechanisms adapted to the specifics of the agricultural sector, which would provide financial support to farmers in the functioning of the land market. Risks of shortage of credit resources, high interest rates, lack of developed and coordinated lending system, and bureaucracy of loans will interfere with integral land market relations. In this regard, the creation of credit infrastructure focused on servicing the agricultural economy, mechanisms of credit relations with commercial banks, as well as mechanisms of non-bank lending is necessary.

Thirdly, it is extremely important to determine the normative monetary value of each land plot that will become a commodity on the land market. This process has not been completed yet, despite the short period left before the start of land sales. In addition, no institution is endowed with sufficient powers to regulate the agricultural land market. When there is no an institution, the functioning of civilized market relations should not be expected. Therefore, in this regard, it is worth referring to the positive experience of other countries with developed and stable land markets.

The Article outlines only the main "hot" points of the first period of land market opening. However, there are other significant risks that need to be analyzed in order to prevent or minimize them. This is an area for further research.

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LEADERSHIP DEVELOPMENT IN LEADING COUNTRIES OF WESTERN AND NORTHERN EUROPE

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Summary

At the current stage of Ukrainian state integration into European community, country leaders face new challenges that require efficiency improvement of public management and public administration based on democracy and human-centeredness.

Urgency of public leadership development in Ukraine is closely related to the foreign countries' experience study on the mechanisms of formation and development of public leadership, characterized by a high level of moral values, responsibility, communication, modesty. The new management paradigm, being implemented in public administration and public management in Ukraine, also requires introduction of new qualities in public leadership, manifested through establishment of moral values in the leader's personality, leader's behavior in public service reform. According to the author, such qualities of leadership as delegation of powers in public authorities, intersectoral cooperation in public administration determine development of leadership in the context of educational trends in foreign countries.

The author believes that today an important aspect in the development of public leadership is the mobilization aspect of the efforts of all leaders and subordinates of public authorities and leaders of civil society institutions to overcome crises and do complex reforms in public administration. Such crises include ensuring stability in global fight against the COVID-19 pandemic. However, problem of public leadership development in this aspect has not been properly reflected in modern scientific sources.

The article reveals priority models of public leadership of Western Scandinavian countries as a prerequisite for formation of successful personality, successful leadership qualities, the trend of which is such an important factor as publicity, because before the 90s of the twentieth century not all government officials in European countries were public.

Keywords: leadership qualities, personality of the leader, typology of leadership, moral values, responsibility, communication, modesty, publicity, civil society institutions.

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1. Introduction

The focus on leadership transparency in Western European countries has been part of the major shift in the role of top officials, as it was expected of them to demonstrate public leadership (*Chappelet, 2017*). This was one of the important trends in the development of leadership as not all officials until the 90s were clearly public.

In this article the author will consider the features of the public leadership development in the Scandinavian countries such as Norway, Sweden, Denmark, part of leading countries of Western Europe – the Kingdom of the Netherlands and Switzerland. After all, the new management paradigm, which is actively implemented in the domestic public administration, requires

the formation of new qualities in public leadership, which are manifested through the assertion of moral values of the individual, his behavior in communication, self-management and stressful situations. Such leadership qualities as the ability to self-education, delegation of the authority, transparent (transparency, openness and activation) and transformational cooperation determine a new style of leadership development in Western European countries, which will be useful for implementation in Ukraine (*Kalashnik, 2013*).

The analysis of recent researches shows that the problem of modern leadership in public administration is constantly viewed by domestic and foreign scholars. V. Golub, N. Honcharuk, V. Goshovska, I. Hryshchenko, G. Dmytrenko, L. Karamushka, O. Kryukov, B. Kukhta, N. Nyzhnyk, T. Novachenko, M. Piren, F. Rudych, I. Surai, L. Pashko and others made such a significant contribution to the study of leadership in public administration with the specification of its principles. However, the research question of major principles of leadership in public administration in public administration science in the context of public service reform has not received proper scientific justification, which determines the relevance of the research topic.

2. The main features of public leadership in public administration development in the Kingdom of the Netherlands

Today the issues of leadership, its major principles and the development of leadership potential are on focus of scholars and practitioners who are aware of their importance for effective public administration reform and democracy development.

The Scandinavian countries should be considered as an example of how in fairly harsh climatic conditions it is possible to build a model of socio-political system with highly developed economy, a high standard of living, respect for people's rights and freedoms.

The Kingdom of the Netherlands determines that one of the important human factors of a person involved in public administration and adapted to new challenges is his "quality". Therefore, public officials in this country are required for continuing education, particularly in the field of e-democracy (*Faculté de droit, des sciences criminelles et d'administration publique, 2020*).

There is no doubt that information and communication technologies, opening new opportunities not only for modernization but also for greater transparency in the activities of government authorities and top managers, contribute to increasing the democratic participation of citizens in political life of the state and leadership development.

In this context, much attention is paid to continuing education, which distinguishes between career-oriented long-term programs and short-term training for a specific tasks or job. In such matters there is a connection and interaction between the government, public and private universities (*Faculté de droit, des sciences criminelles et d'administration publique, 2020*).

Another feature of the political and administrative system of the Netherlands that should be highlighted and which influences the development of leadership is the interaction between politicians and officials. Yes, politicians with administrative experience, after completing their political careers, mostly hold administrative positions at various levels. Such experience gives officials the opportunity for mutual understanding that contributes to effective interaction and the formation of leadership teams in public administration. It is obvious that the principle of publicity reveals the personality of the leader, accompanied by the acquisition / changing of ideas about his professionalism, values, self-fulfillment as a manager, etc., which may define / not define the leader as a person to be followed.

3. Leadership development in public administration of Scandinavian countries

The main providers of public services in Sweden are local municipalities, whose work is based on the following principles: democracy – all public power is exercised through the people by universal suffrage, representative democracy and a parliamentary system; obedience to the law – public authorities must strictly comply with the law; objectivity – impartiality and equal treatment of all people; freedoms – free formation of opinions and freedom of expression; respect – public authority must be exercised through respect for the freedom and equality of every human being; efficiency and service – public sector activities should be carried out inexpensively and with the highest possible quality, taking into account available resources (Page E., Wright V., 2007: 135).

According to the current constitutional legislation of Sweden, the right to establish a system of public administration, the status of the civil service, the conditions of its passage is given to the Riksdag. The administrative apparatus of the center and local level is managed by the government (Page E., Wright V., 2007: 145-185).

The first group includes "political officials", including ministers, their deputies, heads of government departments, prosecutors, governors, police chiefs and so on. Specifically, the main composition of senior and middle administrative staff does not depend on the political orientation of the government, and therefore is unchanged. For such employees, promotion is permissible, but transfer against their will or dismissal before reaching the established age is not allowed. Municipalities are independent of the central government and independent in determining financial status and staffing. Their employees do not belong to civil servants, while such a concept as "rank of civil servants" does not exist (Ibid).

Civil servants are required to have high professionalism and relevant personal qualities. The training of civil servants in Sweden is carried out in universities, their education has traditionally been economic or legal, which corresponds to the essence of the Anglo-Saxon approach to their education. However, receiving professional education, civil servants have a strong training in the field of law, but improving the quality of work is associated with the application of an interdisciplinary approach, which expands their opportunities for successful management (Ibid).

The use of training programs in the context of an interdisciplinary approach, allows you to develop and improve systematic and critical thinking, communication skills, self-organization, creativity, teamwork skills, etc., undoubtedly contributes to leadership development.

Turning to the analysis of professional development of the officials in Norway, we see that their retraining is absent. They adhere to the imperative that passing the competition to occupy the vacant post of public service gives every specialist a reason to fully perform their professional duties. At the same time, the system of advanced training of public servants is based mainly on self-education. This applies to the process of self-acquisition of knowledge and skills both individually and during the course (Meer F.M. van de, Kerckhoff A.D.N., Osch D.A.G.T. van., 2014: 20-23).

Public servant of Norway can apply to an educational institution and study on his / her own. Such services are most often provided by Higher Public Schools, which conduct free courses on democracy development, involvement of citizens in the development of society, creation of conditions for self-development, self-realization, training of leaders, etc.

The defining form of professional development is self-education, which develops leadership by providing important competencies. In the performance of functional duties, the quality of their implementation directly depends on the ability of the employee to self-education,

which is considered as the standard of public service (*Meer F.M. van de, Kerkhoff A.D.N., Osch D.A.G.T. van., 2014: 23*).

4. The continuing education for leadership in public administration of Switzerland

Switzerland is a federal parliamentary republic, its public administration is governed by the provisions of the Constitution (1999), the basic principles of which are respect for federalism and democracy (*Guide to modern and effective human resource management. 2013: 20-23*).

Significant achievement of Swiss democracy is the various tools of direct democracy, which allows citizens to be active participants in elections, referendums, legislative initiatives, public meetings of voters etc. (*Ibid*).

Civil servants and their leaders need to introduce new ways and methods of leadership that allow them to perform their tasks more fully. This means the need for continuing education, which can be carried out in leading higher education institutions. One of them is the Institute for Advanced Studies in Public Administration (Swiss graduate school of Public Administration – french: Institut des hautes études en administration publique, IDHEAP). It is one of the most popular in the system of professional training of civil servants and their leaders (*Ibid*).

This education institution trains government officials, their leaders and those who plan to work in public area after graduation. IDHEAP training programs are approved at the confederation level, and the Master's degree in Public Administration has been accredited by the European Association for Public Administration Accreditation. The training of students in IDHEAP is carried out within the framework of the main programs: master's degree in public administration, as well as public management and policy, doctoral studies in public administration (*Ibid*).

Along with teaching IDHEAP conducts the researches and consulting on issues of public administration, professional training for members of administrative bodies, aimed at leadership development.

Another feature of Swiss system of public administration is the great attention to the recruitment of future civil servants. Selection of candidates in the public administration system takes place under the conditions of open competition and interviews with potential direct supervisors. For searching of candidates it is used well-known social networks, such as: Facebook, LinkedIn, as well as specialized portals, in particular: Federal jobs portal: www.stelle.admin.ch/stelle/fr/home.html, specializing in the recruitment of civil servants (*Ibid*). Among other important requirements for such recruiters we should mention the availability of professional education that corresponds to the exact position; higher education corresponding to the level of bachelor, master or PhD.

The necessary requirements also include knowledge of national languages, each employee of the municipality must speak at least two languages (71% German, 22% French, 7% Italian). Personal qualities and the ability and desire to continuing education and self-improvement are also taken into account (*Van der Hoven R., 2020*).

5. Conclusions

Thus, the analysis of foreign experience in leadership development in the context of educational trends in the Scandinavian countries – Sweden, Norway, the Netherlands and Switzerland shows that European integration has led to interactions in this process.

It is determined that the defining feature in the political and administrative system of the Netherlands is the interaction between politicians and officials, that influences the development

of leadership. Yes, politicians having an administrative experience, after completing their political careers, mostly hold administrative positions at various levels.

Sweden is one of the most innovative and cooperative countries in the world, presenting itself as a global changing leader in promotion and supporting the concept of sustainable development. The success of this concept requires a coordinated effort of the entire system of public administration, according to which the country's development policy is based on a unique mix of innovation and cooperation. The so-called "policy labs" help government agencies to meet the needs of society, successfully make regulatory changes and facilitate innovations that will stimulate social sustainable development.

So in order to make a career and hold a senior position in Norway, to become a leader and improve your financial well-being you need to study continuously.

Swiss public administration is based on such fundamental principles as neutrality and direct democracy. Practice has shown that the transfer of powers from the center to the cantons and communities increases the efficiency of public administration in the country.

The outlined unanimity revolves around the understanding and awareness of civil servants and managers-leaders of the importance of lifelong learning, the importance of recruitment and non-admission to this category of random and unprofessional people. This makes it possible to affirm the importance of updating the experience, educational trends of European countries and their creative adaptation in Ukraine.

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SPECIAL PRE-TRIAL INVESTIGATION OF CRIMINAL OFFENSES: CHANGES CONTINUE

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Summary

In this article author explores the law regulation of the institute of the special pre-trial investigation of criminal offenses considering the changes. The light is shed on the role of the public prosecutor in the context of motion trial during the special pre-trial investigation. The issue of introducing changes to the Chapter 24¹ of the Criminal Procedure Code of Ukraine is considered. The grounds for conducting the special pre-trial investigation or special court proceeding are analyzed. The legislative consolidation of the possibility of declaring international and/or interstate searching of a person is covered. The duty of the investigator (or the public prosecutor) regarding the proof of the fact that the suspect is hiding from the investigating authority aiming to evade the criminal liability (i. e. the suspected person has to know that there is a criminal case against him/her and he/she is notified of suspicion; however, he/she is hiding aiming to evade the criminal liability) is defined. Therefore, the investigating judge is obliged to take into consideration availability of sufficient evidence for suspicion of a person, towards which the motion for conducting of a special pre-trial investigation is filed. The trial of the motions for conducting of a special pre-trial investigation, special court proceeding of the offenses, mentioned in the Part 2 Art. 297¹ of the Criminal Procedure Code of Ukraine is conducted by the court in according to the rules of jurisdiction, defined in the Art. 32 of the Criminal Procedure Code of Ukraine.

Keywords: international searching, notification of suspicion, motion for special pre-trial investigation, special pre-trial investigation, simplified proceedings, trial in absentia, participants of criminal proceeding, procedural documents.

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1. Introduction

The issue of ensuring the inevitability of criminal prosecution for a criminal offense has always been one of the key components of criminal policy in our country.

With the Law of Ukraine "On Amendments to the Criminal and Criminal Procedure Codes of Ukraine on the inevitability of punishment for certain crimes against the foundations of national security, public safety and corruption crimes" № 1689-VII of 07.10.2014 the Criminal Procedure Code of Ukraine was supplemented with a new Chapter 24¹ "Features of a special pre-trial investigation of criminal offenses", which contains five articles (Articles 297¹-297⁵ of the Criminal Procedure Code of Ukraine).

Its effective implementation in relation to persons who commit criminal offenses under Part 2 of Art. 297¹ of the Criminal Procedure Code of Ukraine, is of great importance for today's society because of its extremely negative attitude to these phenomena. One of the procedural means of ensuring the inevitability of punishment for a criminal offense is the use, in cases

where a person is hiding from the pre-trial investigation and court, of the procedures of criminal proceedings in absentia.

The possibility of a special pre-trial investigation is also envisaged in Part 5 of Art. 139 of the Criminal Procedure Code of Ukraine, according to which evasion the appearing at the summons of an investigator, prosecutor or court summons of an investigating judge, court (failure to appear at the summons without good reason more than twice) by a suspect/accused person and declaring him/her in interstate and/or international searching are the grounds to conduct a special pre-trial investigation or special court proceedings.

Thus, **the relevance of the topic** is due to the fact that one of the priority tasks of criminal proceedings is to provide legal mechanisms that determine the implementation of the principle of inevitability of liability for a criminal offense. An important component of filling this principle with specific content is the introduction of this institution by the domestic legislator. Its implementation in the legal field of Ukraine creates the preconditions for prosecuting persons who evade investigating authority or court and is designed to increase the effectiveness of protection of public interests of the state. At the same time, it should be noted that the introduction of this institute requires a detailed study and rethinking of some of its aspects.

The **purpose of the study** is to summarize the current criminal procedure legislation, the practice of its application and special literature, to highlight the main issues of special pre-trial investigation and trial within criminal proceedings.

Methodologically, the study is based on the dialectical method of cognition, on the general methods of analysis and synthesis, induction and deduction, on identifying analogies and comparisons, on a systematic approach in the analysis of legal relations and legal documents, on formal-logical and comparative-legal methods of interpreting law, both on the theoretical and empirical levels.

2. Main material

The exploring of certain problematic issues related to special pre-trial investigation and trial in absentia is relevant and necessary, as this institution can be considered new and in need of improvement, borrowing practical experience from other countries. The scientific works of Iu. Azarov, D. Alekseeva-Protsiuk, A. Barabash, V. Drozd, O. Kuchynska, L. Loboyko, V. Maliiarenko, M. Markusha, M. Mykheienko, and O. Nahorniuk-Danyliuk, V. Nor, R. Piestsov, P. Pylypchuk, D. Pysmenny, S. Shmalenia and others are devoted to separate issues concerning the special pre-trial investigation.

A special pre-trial investigation (in absentia) is conducted against one or more suspects in accordance with the general rules of pre-trial investigation provided by the Criminal Procedure Code, subject to the provisions of Chapter 24¹.

The special pre-trial investigation is carried out on the basis of the decision of the investigating judge in criminal proceedings concerning the crimes provided by Articles 109, 110, 110², 111, 112, 113, 114, 114¹, 115, 116, 118, Part 2 of Art. 121, Part 2 of Art. 127, Parts 2-3 Art. 146, Articles 146¹, 147, Parts 2-5 of Art. 191 (in case of abuse by an official of his official position), Articles 209, 255-258, 258¹, 258², 258³, 258⁴, 258⁵, 348, 364, 364¹, 365, 365², 368, 368², 368³, 368⁴, 369, 369², 370, 379, 400, 408, 436, 436¹, 437-447 of the Criminal Code of Ukraine, concerning the suspect, except the minor, who hides from of investigating authorities and court in the temporarily occupied territory of Ukraine, in the territory of the state, recognized by the Verkhovna Rada of Ukraine (the Parliament) as an aggressor state, in order to evade criminal liability and/or declared internationally wanted.

Special pre-trial investigation of other crimes is not allowed, except when the crimes were committed by persons hiding from the investigating authorities and court in the temporarily occupied territory of Ukraine, in the territory recognized by the Verkhovna Rada of Ukraine (the Parliament) as an aggressor state, in order to evade criminal liability and/or are internationally wanted and are being investigated in the same criminal proceedings as the offenses set forth above, and the release of materials concerning them may adversely affect the completeness of the pre-trial investigation and trial.

It is pointful to note that the interstate searching is conducted in the manner prescribed by the Agreement of the Member States of the Commonwealth of Independent States on the interstate searching of persons from 10.12.2010. The international searching of persons is regulated in Ukraine by a joint Order of the Ministry of Internal Affairs of Ukraine, the Office of the Prosecutor General of Ukraine, the National Anti-Corruption Bureau of Ukraine, the Security Service of Ukraine, the State Bureau of Investigation of Ukraine, the Ministry of Finance of Ukraine, the Ministry of Justice of Ukraine dated August 17, 2020 № 613/380/93/228/414/510/2801/5 "On approval of the Instruction on the procedure for use by law enforcement agencies of Ukraine of the information system of the International Criminal Police Organization – Interpol", registered at the Ministry of Justice of Ukraine on September 4, 2020 for № 849/35132.

If several persons are notified of a suspicion in criminal proceedings, the investigator, prosecutor has the right to apply to the investigating judge with a motion to conduct a special pre-trial investigation only in respect of those suspects in respect of whom there are grounds under Part 2 of Art. 297¹ of the Criminal Procedure Code of Ukraine, and in respect of other suspects further pre-trial investigation in the same criminal proceedings will be carried out in accordance with the general rules provided by the Criminal Procedure Code of Ukraine.

Thus, a special pre-trial investigation is a differentiated procedure for conducting a pre-trial investigation of crimes, which is applied in cases of evasion of a suspect criminal liability by concealment from the investigation authority and court, aimed at providing evidence at the stage of pre-trial investigation in criminal proceedings, taking into account the standards of fair justice.

The fact that special proceedings are an independent procedural form is evidenced by a number of features that at the general theoretical level were once defined by V. Trofymenko: a) a special procedure; b) its clear legal regulation; c) the orientation of the procedure, prescribed by law, to solve problems of a particular area of procedural activity (*Trofymenko, 2012: 203*).

Based on the provisions of Ch. 24¹ of the Criminal Procedure Code of Ukraine, a special pre-trial investigation is carried out on the basis of the decision of the investigating judge on the basis of the relevant motion of the prosecution.

We consider it necessary to determine the exclusive role of the prosecutor at the stage of drafting and sending the motion, which is as follows: the prosecutor decides on the motion to be applied for consideration by the investigating judge, determines the limits of its consideration, supports the motion before the investigating judge and supervises the legality of the execution of the decision made by the investigating judge on this issue (*Lapkin, 2013*).

We agree with the opinion of A. Lapkin that the role of the prosecutor in initiating a special pre-trial investigation is manifested primarily in the fact that he is an entity authorized to appeal to the investigating judge with a motion to conduct such an investigation. Along with the prosecutor, the investigator has the same right, but the latter exercises this in agreement with the prosecutor. Thus, the prosecutor initiates the issue in two forms: 1) by personally appealing to the investigating judge with a motion to conduct a special pre-trial investigation;

2) by approving the motion filed by the investigator. In any case, the described issue can be initiated only at the will of the prosecutor (*Lapkin, 2018*).

Proper procedural registration of the initiation of a special pre-trial investigation envisages preparation and submission for consideration by the investigating judge of the relevant motion, the requirements for which are provided in Art. 297² of the Criminal Procedure Code of Ukraine. In this motion, the prosecutor, the investigator must set out the grounds for a special pre-trial investigation, as well as the confirming circumstances.

When the investigating judge is deciding on the conduct of a special pre-trial investigation, the prosecutor is obliged to support the motion and assist in clarifying the circumstances of the criminal proceedings, hearing any witnesses or examining any materials relevant to the issue of special pre-trial investigation, as well as to prove to the investigating judge the existence of sufficient evidence to suspect the person in respect of whom the motion was filed, of committing a criminal offense (Part 2 of Art. 297² of the Criminal Procedure Code of Ukraine).

Conducting of criminal proceedings under the rules in absentia imposes additional obligations on the prosecutor to protect the rights of the suspect, because according to Part 2 of Art. 7 of the Criminal Procedure Code of Ukraine, he is obliged to use all opportunities provided by the law to respect the rights of the suspect (including rights to protection, access to justice, secrecy of communication, non-interference in private life) in the event of criminal proceedings in the absence of the suspect. The prosecutor should pay special attention to ensuring that the suspect is properly informed about the progress of the special pre-trial investigation.

Based on the analysis of Art. 297⁵ of the Criminal Procedure Code of Ukraine, the following mandatory forms of informing can be distinguished: 1) sending subpoenas to the suspect at the last known place of his/her residence or stay; 2) publication of these subpoenas in the mass media of the national sphere of distribution and on the official websites of the authorities conducting pre-trial investigation; 3) sending to the defense counsel copies of procedural documents that are to be handed to the suspect.

The President of Ukraine signed the Law "On Amendments to the Criminal Procedure Code of Ukraine to improve certain provisions in connection with a special pre-trial investigation" № 1422-IX, which was adopted by the Verkhovna Rada of Ukraine on April 27, 2021.

This document is designed to ensure the inevitability of punishment of citizens who have committed a criminal offense and are hiding from the investigation in other countries or in the temporarily occupied territories of Ukraine.

According to Ukrainian law, in order to initiate a special pre-trial investigation or special court proceedings against a fugitive, he must be declared in the international searching. But Interpol sometimes refuses to declare certain individuals internationally wanted, citing signs of political persecution. The courts, in their turn, link the declaring in the international searching to the time when Interpol issues a "red card" and, as a result, refuse to grant motions for special pre-trial investigation.

The law signed by the President changes the approach and defines two grounds for conducting a special pre-trial investigation or special court proceedings:

- 1) if the suspect is declared in international searching;
- 2) if the suspect unreasonably evades appearing at the summons of an investigator, prosecutor, investigating judge or court (provided he is duly notified of such summons) and is in the territory of the aggressor state or in the temporarily occupied territories of Ukraine.

The investigating judge may arrest such a suspect in absentia.

The document also defines the list of norms of the Criminal Code of Ukraine, according to which a special pre-trial investigation can be carried out. Trial of defendants in such criminal proceedings may be conducted in their absence (in absentia). Exceptions are minors.

The Law also introduces mandatory publication in the national media and on the official website of the Office of the Prosecutor General of Ukraine of the information on suspects who have been the subject of a special pre-trial investigation, no later than 24 hours after receiving the relevant court decision.

If after the commencement of special court proceedings, the accused person appeared or was brought to court, from that moment the trial continues according to the general rules of the Criminal Procedure Code of Ukraine.

In particular, Law № 1422-IX amends Art. 281 of the Criminal Procedure Code of Ukraine, which defines two grounds for declaring a searching of a suspect: if his/her whereabouts are unknown, and if the suspect evades appearing at the summons of the investigator, prosecutor, investigating judge or court, provided he/she is duly notified of such summons and if there are reasonable grounds to believe that he/she left and/or is in another country or in the temporarily occupied territories of Ukraine.

The adopted amendments to the Criminal Procedure Code of Ukraine stipulate that in case of choosing a measure of restraint in the form of detention of a suspect or accused in case of a search warrant, the validity of the decision is not specified and the amount of bail is not determined.

Earlier, Prosecutor General of Ukraine Iryna Venediktova informed that the adoption of the aforementioned Law, among other things, will allow to send to court 8 thousand cases against deserters, investigation against whom is temporarily suspended. Among the defendants are Ukrainian servicemen who did not leave the peninsula after Russia's occupation of Crimea, as well as servicemen who did not leave the temporarily occupied territories of Donetsk and Luhansk regions (*Hlava derzhavy...*, 2021).

3. Conclusions

In conclusion, we would like to note that almost all democratic states of the world have introduced the institution of proceedings in absentia in their legal system, which, as practice shows, is actively used. This is confirmed by a number of high-profile criminal cases resolved without a defendant (accused). In particular, Crosby against the United States, Jashari against Yugoslavia, Boere against Germany, Degrell against Spain, Diaz against the United States, Factor against Great Britain, Luster against the United States.

Domestic legislation envisages the fulfillment of certain conditions under which a special pre-trial investigation of criminal offenses may be carried out, namely the mandatory participation of a defense counsel, who is involved in accordance with paragraph 8 of Part 2 of Art. 52 of the Criminal Procedure Code of Ukraine, – from the moment of adoption of the relevant procedural decision (decision of the investigating judge on special pre-trial investigation of criminal proceedings) and duly filed motion of the investigator (agreed with the prosecutor) or prosecutor about such proceedings applied to the investigating judge (Article 297² Criminal Procedure Code of Ukraine).

Thus, the prosecutor plays a key role in conducting a special pre-trial investigation, which is manifested in the following aspects: initiating a special pre-trial investigation (by appealing to the investigating judge with a motion or approving the investigator's motion); procedural management of such a pre-trial investigation (which imposes additional obligations on the prosecutor to ensure the rights of the suspect, in particular to protect and inform about the progress of the pre-trial investigation); decision-making on the termination of the special

pre-trial investigation (it is envisaged that the prosecutor is to send to the court together with the indictment a motion to carry out special proceedings against the accused).

We hope that the adoption of the practice of foreign countries and the introduction of changes and additions to existing legislation will help to improve the practical implementation of this institution in our country.

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HEALTH, ENVIRONMENT, DEVELOPMENT**X-RAY FLUORESCENCE ANALYSIS OF WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT****Lilia Hlavatska**

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Summary

The aim of this paper is x-ray fluorescence analysis of waste electrical and electronic equipment. The paper evaluates the composition of waste electrical and electronic equipment most often used by today's society. For the five electronic devices (mobile phone, computer mouse, keyboard, web-camera, and computer monitor), the components have been identified and elemental composition has been measured using x-ray fluorescence analysis. As expected, most of the devices weight accounts for plastic (since the casing is mostly made from plastic). Cables also have a significant weight. In the devices analysed, 28 chemical elements were found during the study: the greatest diversity were found in monitor. The largest weight corresponds to "heavy" elements forming metal parts of the devices. Among the valuable components, copper and zinc are the most common. It is worth noting the high content of titanium in all the devices.

Keywords: elemental composition, electronic device, waste electrical and electronic equipment, metal, x-ray fluorescence analysis

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1. Introduction

Mankind is currently at the stage of regulation and adjustment of waste management. In recent years, the policy of developed countries focused on the circular economy, including resources extraction from waste. When assessing the resource value, waste electrical and electronic equipment (WEEE) is very important. Today, WEEE is collected along with other household waste in most countries. As a result, WEEE is either landfilled or incinerated, i.e. resources are lost.

Besides, WEEE may be dangerous to the environment because it contains toxic components, such as heavy metals or organic compounds in plastic (Ishchenko, 2019). Poor waste management results in soil or groundwater pollution by hazardous compounds.

Electronic waste has many components. They include accumulators, batteries, mercury lamps, cathode ray tubes, liquid crystal and plasma panels and other parts consisting of various alloys, plastic, glass and other mixtures.

There are many studies dedicated to WEEE composition (*Morf, 2007, Musson, 2006, Dimitrakakis, 2009, Chancerel, 2009, Hlavatska, 2021*), which cover different countries and different types of WEEE. The diversity of WEEE and regular changes of technologies cause a need for new research. A number of researchers (*Salhofer, 2011, Oguchi, 2013, Nnorom, 2009, Lincoln, 2007, Ernst, 2000*) have analysed the content of hazardous substances in WEEE. Bigum et al. (*Bigum, 2013*) have found lead, cadmium, mercury, brominated retardants (BFRs), polyvinyl chloride and other toxic compounds in WEEE. Dimitrakakis et al. (*Dimitrakakis, 2009*) have found that some heavy metals (cadmium, lead) are over the limits in the plastic of electronic waste.

Taking into account the abovementioned and permanent changes of WEEE due to technological progress, there is a need for chemical analysis of WEEE. Such an analysis is necessary for further resource value assessment of WEEE and identification of relevant environmental risks.

2. Methods and materials

The most common electronic devices were selected for the study: mobile phone, computer mouse, keyboard, web-camera, and computer monitor. These devices were disassembled into components (by functional purposes) and weighed. Afterwards, the content of chemical elements was measured by X-ray fluorescence analyser "Expert-3L" (INAM, Ukraine). This analyser can be used for chemical analysis of high accuracy (hundredths of a percent). Currently, x-ray fluorescence analysis is often used in environmental research since it allows quick measurement of many elements simultaneously. Therefore, this method was chosen to study WEEE containing a wide variety of chemical elements.

3. Results and discussion

Mobile phone

The main components of the mobile phone under investigation are as follows: cable, toggle switch, capacitor, winding, screen backing, membrane, screen sensor, plastic case, metal part of the case, printed circuit board. The total weight of the phone is 109.88 g, including: plastic – 15.45 g, metals – 33.11 g, battery – 22.46 g, printed circuit board (PCB) – 15.09 g, touch screen – 14.06 g, other small components – 9.71 g. The weight fractions of each chemical element were determined by x-ray fluorescence analysis (Table 1).

As one can see from the Table 1, iron, copper and strontium are the most represented in the mobile phone.

Chemical composition of computer mouse is also diverse though this is simple device. The computer mouse was defined to consist of the following components: plastic case – 44.55 g, cables – 22.45 g, PCB – 11.15 g, screws – 0.26 g. Table 2 shows the chemical composition of the computer mouse components. Calcium is of the highest concentration, a significant part belongs to titanium, chlorine, copper, bromine, zinc and tin. Rest of the chemical elements are found in small quantities. This distribution is explained by 57% of plastic content in the device.

Table 1

Chemical composition of mobile phone, weight fraction, %

Component	Cl	Ca	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Br	Sr	Zr	Mo	Ag	Sn
cable	-	-	-	-	-	-	-	-	-	98.2	-	-	-	-	-	-	1.8
toggle switch	-	8.3	-	-	-	-	-	-	-	76.3	-	-	-	-	-	-	15.4
capacitor	97.3	-	1.6	-	-	-	0.2	-	-	0.1	0.2	-	0.1	-	-	-	0.5
winding № 1	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-
winding № 2	-	-	-	-	-	-	-	-	-	97.6	-	-	-	-	-	2.4	-
screen backing	-	-	-	-	-	-	-	-	-	-	18.8	-	81.2	-	-	-	-
membrane	-	-	-	-	18.3	1.1	71.6	0.4	8.0	0.4	-	-	-	-	0.2	-	-
plastic case	-	27.5	65.3	1.2	-	-	4.2	-	-	-	-	-	1.5	0.3	-	-	-
screen sensor (inn.)	-	-	-	-	-	-	-	-	-	-	-	-	97.8	2.2	-	-	-
screen sensor (out.)	-	-	-	-	-	-	-	-	-	-	-	0.4	98.3	1.3	-	-	-
metal part of the case	-	-	-	-	18.3	1.1	71.6	0.4	8.0	0.4	-	-	-	-	0.2	-	-
PCB	-	-	-	-	-	-	-	-	18.5	62.5	19.0	-	-	-	-	-	-

Table 2

Chemical composition of computer mouse, weight fraction, %

Component	Cl	Ca	Ti	Fe	Co	Cu	Zn	Br	Rb	Sr	Sn	Sb
plastic case	-	49.1	45.8	-	-	5.1	-	-	-	-	-	-
PCB	-	6.2	-	0.2	41.7	-	24.0	0.3	-	27.6	-	-
cables	53.6	44.3	0.6	-	0.1	0.5	-	-	0.1	-	0.8	-

Chemical analysis of the keyboard has identified many elements (Table 3). As in the previous device, the main component of the keyboard is a plastic case, consequently calcium is among the most represented elements. Also, 1.362 g of lead was detected in the keyboard cable.

Table 3

Chemical composition of keyboard, weight fraction, %

Component	Cl	Ca	Ti	Fe	Co	Ni	Cu	Zn	Br	Br	Sr	Y	Zr	Rh	Ag	Sn	I	Ba	Hg	Pb	Bi	
keys	-	-	98.6	-	-	-	-	-	-	-	-	-	0.6	0.8	-	-	-	-	-	-	-	-
case	-	22.4	58.8	3.8	-	-	-	6.6	8.4	-	-	-	-	-	-	-	-	-	-	-	-	-
cable	55.5	39.6	-	-	-	-	-	-	-	-	0.1	0.1	-	-	-	-	-	-	-	-	4.7	-
capacitor	89.6	4.7	5.4	-	-	-	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
diode	-	-	-	35.7	-	25.0	2.0	-	30.9	-	-	-	-	-	6.4	-	-	-	-	-	-	-
resistor	-	20.7	17.4	22.2	-	-	3.0	0.2	-	0.1	-	0.1	-	0.1	-	1.2	-	34.9	-	-	-	0.1
PCB	-	-	9.4	2.0	0.6	4.4	8.8	-	0.4	-	0.9	0.6	9.4	-	1.6	55.8	4.5	-	1.6	-	-	-
backing	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-

Web-camera was at the peak of sales in the 2000s. Nowadays, most PC monitors and laptops have a built-in camera. That reduces the need for a separate device. The composition of a typical web-camera is as follows: lens, optical filter, charge matrix, digitization unit, video compression unit, CPU, RAM and flash memory, network interface. The weight of the web-camera analysed is 139.24 g: cable – 32.67 g, plastic – 65.8 g, metals – 36.3 g, PCB – 2.51 g,

speaker – 0.33 g, lens – 1.63 g. Table 4 shows the weight fractions of chemical elements detected in web-camera by x-ray fluorescence analyser. The chemical elements of the plastic case prevail: chlorine, calcium, bromine. Also, there is dangerous lead in the amount of 0.23 g.

Table 4

Chemical composition of web-camera, weight fraction, %

Component	Cl	Ca	Ti	V	Fe	Ni	Cu	Zn	Br	Rb	Sr	Mo	Sb	Pb
rubber base	53.1	43.6	1.0	-	0.2	-	0.2	0.3	0.1	0.01	0.03	0.01	0.3	1.15
case	-	34.5	11.5	-	2.2	-	-	1.0	43.4	0.6	0.4	-	6.4	-
cable	57.8	41.3	-	-	0.1	-	0.5	0.2	-	-	0.1	-	-	-
PCB	-	-	7.8	1.6	-	-	80.9		8.8	0.3	0.6	-	-	-

According to the results, PC monitor consists of 22 chemical elements, including precious and toxic metals. The total weight of the monitor is 3.175 kg. Mainly, the weight is made up of metal parts of the case and the screen. Table 5 presents the weight fractions of chemical elements detected in the analysis. The key elements of the PC monitor: titanium, iron, strontium, calcium, copper, bromine, tin, zinc, chlorine, zirconium, silver and antimony. The weight of rest elements is less than 1 g. Such a content is due to the predominance of plastic and metal parts.

Table 5

Chemical composition of PC monitor, weight fraction, %

Component	Cl	Ca	Ti	Cr	Mn	Fe	Ni	Cu	Zn	Ga	As	Br	Rb	Sr	Y	Zr	Mo	Ag	Sn	Sb	Ba	Pb	
frame			95.0			5.0																	
case		21.1	50.0			14.0			2.6			12.4											
binding					0.2	58.5			41.3														
back cover						99.3													0.7				
inner layer of screen		99.7												0.3									
outer layer of screen												99.2	0.8										
strontium layer of screen		13.8							1.8	4.0		0.3		78.4		1.7							
cable								98.2											1.8				
resistor			1.1	1.6	1.1	9.7		2.7	0.2					0.1	0.1	0.1			0.5		82.8		
electrolytic capacitor	98.0		1.4			0.3		0.05	0.05	0.05		0.05						0.05	0.05				
transformer		16.6				0.3		82.8						0.3									
ceramic capacitor			9.0				2.9	9.4				49.7	1.2			9.0			4.8	14.0			
transistor							0.5	96.5										0.6	2.4				
PCB № 1			1.6					97.8				0.5	0.1										
PCB № 2			8.6				1.1	44.6			0.8	22.2	0.4	0.3				3.1	12.1				6.8
PCB № 3			9.2					24.1				31.4	0.5	0.2				1.2	33.0				
PCB № 4		5.9						48.4				6.3	0.1					1.6	37.7				

When averaging the data from the Tables 1–5, we obtain the following average content of chemical elements (Fig. 1): more than half of the weight accounts for iron and titanium (from the metal part of the devices) followed by calcium (due to high plastic content) and strontium. Copper, bromine, zinc, tin and chlorine have a low weight, while other elements are found in very small quantities.

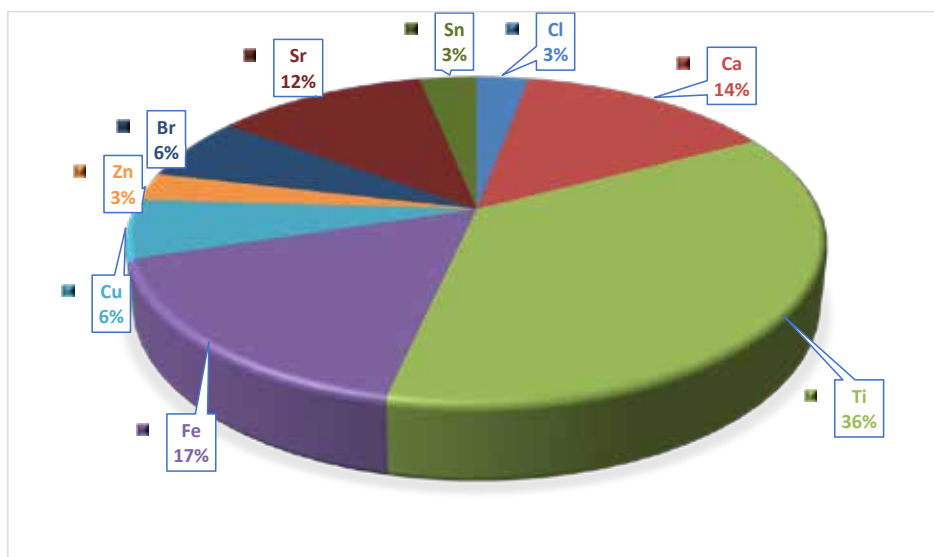


Figure 1. Average chemical composition of electronic devices analysed

4. Conclusions

A study of the most common electronic devices (mobile phone, computer mouse, keyboard, web-camera and PC monitor) has showed a very diverse chemical composition of these devices. As expected, the largest weight corresponds to “heavy” elements (titanium and iron) forming metal parts of the devices. Among the valuable components, copper and zinc are the most common. The distribution of elements by devices is as follows: mobile phone mostly consists of iron, copper and strontium; computer mouse includes the highest calcium concentration while significant part belongs to titanium, chlorine, copper, bromine, zinc and tin; keyboard mainly consists of titanium and calcium; in web-camera, chemical elements of the plastic case dominate: chlorine, calcium, bromine; PC monitor mostly consists of titanium, iron, strontium, calcium, and copper. These results will allow to estimate the resource potential of electronic waste with greater accuracy.

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MECHANISMS OF INFLUENCE OF UNBALANCED FEEDING ON MORPHO-FUNCTIONAL STATE OF LIVER IN PREGNANT RATS

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Summary

Pathology of the organs of the hepatobiliary system is one of the leading causes of death in highly developed countries. Among various factors that can negatively affect the morphofunctional state of the liver in the mother-fetus system, the alimentary factor occupies the first place.

The aim of this study was to establish the mechanisms of influence of excess nutrients in the diet on the morphology and functional state of the liver of pregnant rats.

The structural and functional state of the liver of 7 rats that received an excess diet during pregnancy and 6 rats of the control group were studied.

Morphological changes were manifested by uneven expression of eNOS and a positive reaction of iNOS, which was observed not only in macrophages, but also in single endotheliocytes of dilated sinusoids. Functional changes were characterized by the development of dyslipidemia in the blood serum and the accumulation of TG and NEFA in the liver tissues.

The data obtained in the course of the study may indicate pronounced disorders of lipid metabolism, which can be regarded as a risk factor for the development of steatosis, liver fibrosis, atherosclerosis and type 2 diabetes mellitus.

Keywords: structural and functional state of liver, pregnant rats, excess diet.

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1. Introduction

In recent decades, there has been a tendency towards an increase in the proportion of diseases of the hepatobiliary system in the structure of somatic pathology among pregnant women in the highly developed countries of Europe. One of the key reasons that can have a negative impact on the structural and functional state of the liver of the mother and the fetus is the alimentary factor (diet with excess of nutrients).

In particular, it was proved that a high-fat diet can lead to the development of steatosis of varying degree of severity, inflammation, and fibrosis, which in turn is determined by the nature of the diet (percentage and composition of lipids). According to (Jou J *et al.*, 2008: 370-3), the 10% of vegetable oil, lard and 2% of cholesterol from the total composition of the diet in rats for 12 weeks leads to fatty infiltration of liver and to formation of steatosis in non-pregnant rats (Jou, J. *et al.*, 2008: 371). The authors (Bivalkevich, N.V. *et al.*, 2015: 39) found that prolonged exposure for 180 days to a high-lipid diet (19% rendered beef tallow and 2% cholesterol) led to

the development of steatohepatitis and triggered the fibrogenesis processes. It has been proven that a high-lipid diet leads to intensification of lipid peroxidation (LPO) processes and depletion of antioxidant defense mechanisms (*Bivalkevich, N.V. et al., 2015: 41*).

In addition, the effect from excess fat in diet in the occurrence of obesity and non-alcoholic fatty liver disease (NAFLD) has been proven. It was found that in young rats the induction of obesity by a diet with excess lipids is more effective than in rats of older age (*Rossi, A. et al., 2020; Derks, N.G. et al., 2015: 537*). The scientific works of (*de Castro, U.G.M. et al., 2013*) proved that young 4-week-old Fischer rats fed based on a diet enriched with animal fat (lard 40% by weight) had an increase in body weight and abdominal obesity (*de Castro, U.G.M. et al., 2013*). Literature data indicate that excess fat in the diet of rodents leads to the development of hypertrophy and fibrosis of the heart, myocardial necrosis, while in mice it also induces an increase in systolic blood pressure and the development of endothelial dysfunction (*Francini-Pesenti, F. et al., 2019; Brambilla, A. et al., 2014: 92*). (*Senaphan, K. et al., 2013: 211*) proved the short-term effect of a combined high-calorie diet (milk fat 21% and sucrose 34% by weight) on the induction of metabolic syndrome in 8-week-old C57Ba/6 mice and the development of the expression of genes involved in lipid metabolism and genes involved in transmission of insulin signal to tissue cells (*Senaphan, K. et al., 2013:212*).

Despite the presence of studies dedicated to the study of influence of the alimentary factor on the structure and functional state of the rat liver, the issues of its effect in the mother-fetus system remain underresearched.

The **aim** of this work was to study the mechanisms of influence of an excess diet on the structural and functional state of the liver in pregnant rats.

2. Materials and methods

The experimental work was carried out in 13 heads of 4-month-old female rats of the WAG population, which were divided into two groups: 7 female rats, which received the basic vivarium during pregnancy (group 1 or control group); 6 females, which received a diet with excess nutrients during pregnancy (group 2 or main group). The simulation of the effect of the alimentary factor on rats was carried out using an experimental model developed by the staff of the Department of General and Clinical Pathophysiology named after D.E. Alpern, at the Kharkiv National Medical University (*Nikolaeva, O.V., Kovaltsova, M.V., Yevtushenko, T.G. (2013). Pat. 80979 Ukraine IPC G09B 23/28 (2006.01) Method of excess weight modeling*).

3.1 Immunohistochemical research

The morphofunctional state of the organ was assessed by the results of immunohistochemical (IHC) studies of liver tissue and biochemical analysis of blood serum and organ homogenates. To assess the state of the liver vascular endothelium by the IHC method, a qualitative reaction was carried out to determine the expression of markers of nitric oxide metabolism: endothelial nitric oxide synthase (eNOS) and inducible nitric oxide synthase (iNOS). We used concentrated polyclonal rabbit antibodies (PCAT) from Thermo scientific (Germany) – Nitric Oxide Synthase inducible (iNOS) Rabbit Polyclonal Antibody dissolved at 1:100, and Nitric Oxide Synthase endothelial (eNOS) Rabbit Polyclonal Antibody dissolved at 1:50.

3.2 Biochemical research

The functional state of the liver was assessed by the level of lipid metabolism indicators: total cholesterol (CS), low density lipoproteins (LDL), very low density lipoproteins (VLDL), high density lipoproteins (HDL), triglycerides (TG), atherogenic index (AI). The level of cholesterol, triglycerides, and HDL was determined by the spectrophotometric method using the reagent kits by Olvex (Russia), while the level of LDL, VLDL, and AI – by the calculation method. The fractional composition of lipids (cholesterol – CS, phospholipids – PL, triglycerides – TG, non-esterified fatty acids – NEFA) was studied in the liver tissue by thin layer chromatography on Silufol plates (*Kamyshnikov, V.S., 2016*).

All procedures on animals were performed in compliance with the rules and international recommendations of the European Convention for the Protection of Vertebrate Animals used for experiments or other scientific purposes (*Strasbourg, 1986*). Animals were withdrawn from the experiment by decapitation immediately after the birth of offspring. Statistical processing of the research results was carried out using the GraphPadPrism5 software. The Mann-Whitney U criterion was used to determine the significance of differences.

4. Results and discussion

The IHC study of the liver tissue of rats of the main group revealed changes, which consisted in the fact that the distribution of endothelial synthase in the organ of rats of the Group 2 was somewhat uneven, intermittent, with an overall moderate marker reaction.

A positive iNOS reaction in the observations of this group was detected not only in macrophages, but also in single endotheliocytes of dilated sinusoids, endothelial cells of the central vein, and in single isolated hepatocytes (Fig. 1).

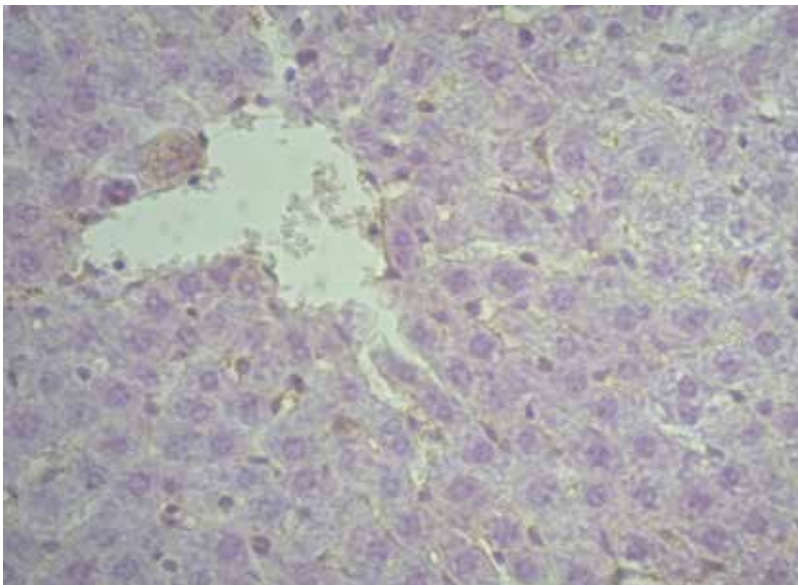


Fig. 1. Liver of rats, Group 2. Positive staining of endothelial cells and single hepatocytes. Reaction with PCAT to anti-iNOS, × 400

The revealed changes indicated a minimal expression of eNOS, which indicated high compensatory capabilities of the mother's body during consumption of a diet with excess nutrients. The accumulation of iNOS promoted increased damage to hepatocytes, which in turn lead to the death of endothelial cells and the progression of sclerosis of the connective tissue structures of the liver. These immunomorphological features confirmed the presence of a moderately pronounced degree of endothelial dysfunction, which led to a decrease in the functional activity of the organ.

The Figures 2 and 3 present the results of biochemical studies of blood serum and liver homogenates needed to assess the functional state.

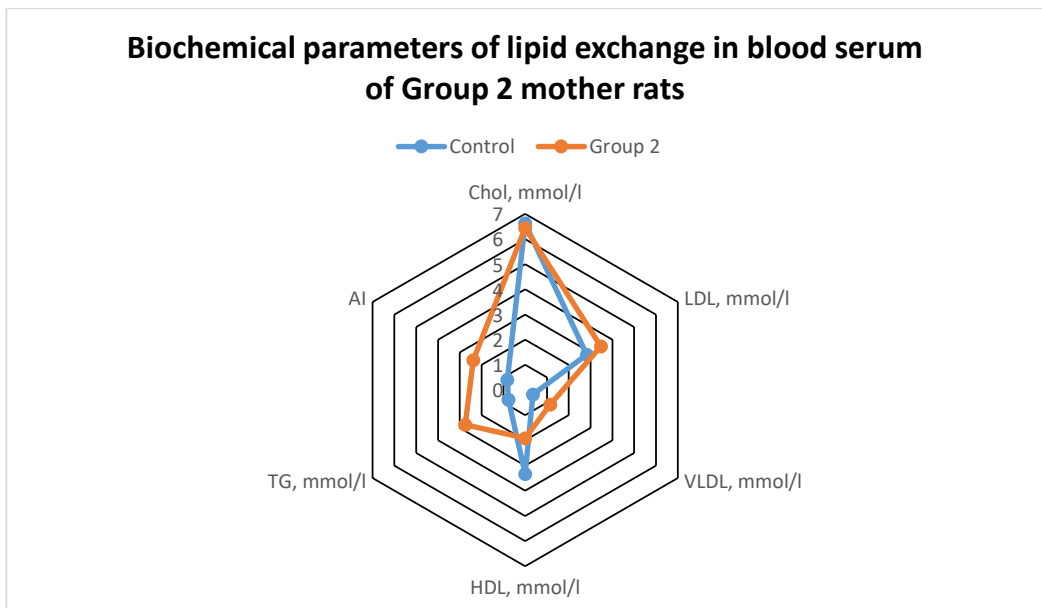


Fig. 2

As can be noted according to the data presented in Fig. 2, the lipid profile of mother rats of Group 2 contains the level of cholesterol corresponding to that in rats of the control group, and TG is significantly increased – by 257.1%, $p < 0.05$. Moreover, a significant increase of AI – by 190.2% ($p < 0.001$) was detected, which was due to an increase in VLDL by 219.4% and a decrease in HDL by 42.6% ($p < 0.05$). The established regularities of the lipid profile indicate pronounced disorders of lipid metabolism and prove a high degree of risk of atherosclerosis in females who received an alimentary excess of nutrients in the diet.

The study of liver homogenates (Fig. 3) in rats of Group 2 revealed significant changes in the fractional composition of lipids, which were manifested by an increase in TG and NEFA – by 71.7% and 95.1% ($p < 0.01$), respectively, at a PL level which did not differ from the control, and, a decrease in the level of cholesterol – by 28.1% ($p < 0.01$).

The revealed changes indicate the presence of a pronounced degree of lipid metabolism disorders, which can serve as a risk factor for the development of metabolic syndrome, atherosclerosis and various organic liver pathologies.

The morphofunctional changes revealed in the rat liver can be explained by the fact that the consumption of a diet with excess nutrients leads to a functional overload of hepatocytes.

Long-term functional overload of liver cells potentiates degenerative changes in liver cells, which subsequently leads to their depletion. Furthermore, these changes contribute to the activation of the stress response, and this, in turn, contributes to hypercatecholaminemia, which aggravates liver damage.

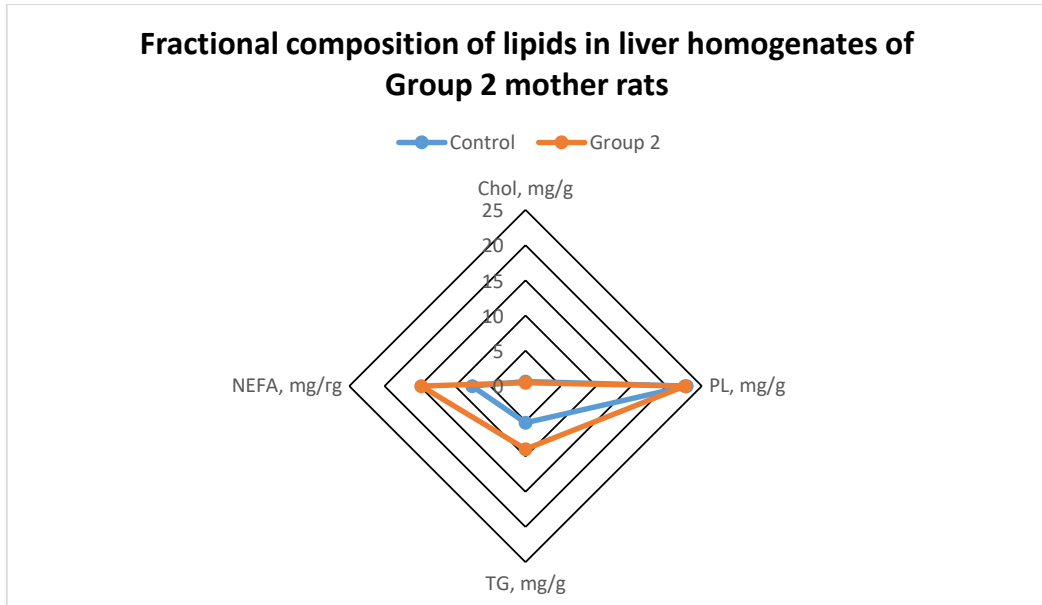


Fig. 3

5. Conclusions

1. Long-term consumption of excess nutrients in the diet leads to the development of structural and functional disorders, which were manifested by a positive reaction of inducible NO-synthase, which can become a risk factor for the development of fibrotic changes in the liver.

2. Functional changes in the liver were manifested by the development of dyslipidemia (significant increase in TG, VLDL and AI), which can be regarded as a risk factor for the development of atherosclerosis, metabolic syndrome and type 2 diabetes mellitus.

3. Biochemical studies of liver homogenates indicated violations of lipid metabolism, which was confirmed by the accumulation of TG and NEFA with a decrease in the level of CS and PL in the tissue of the organ, which can be regarded as a predisposing risk factor for the development of steatohepatitis, hepatic steatosis and other organic liver pathologies.

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**PERSONALIZED CHARACTERISTICS OF MORPHOMETRIC
AND FUNCTIONAL PARAMETERS OF RETINA
IN ARTERIAL HYPERTENTION ACCORDING TO OPTICAL COHERENCE
TOMOGRAPHY-ANGIOGRAPHY DATA**

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Summary

In recent years, the study of the structural and functional state of the retina in patients with the hypertension stage of the I-IInd type with the usage of optical coherence tomography with angiography, is the subject of particular interest.

It was examined 54 patients with the I- II stage of hypertension, aged 35 to 62 years, who did not receive antihypertensive therapy. Visualization of retinal structures was performed using an optical coherence tomograph (RTVue XR Avanti OCTA (Optovue, Inc, with AngioVue Software 2.0) with angiography function.

A decrease in visual acuity was found in 56.67% of patients with hypertension of the I stage, and – in 79.17% of patients with the II stage.

From the retinal arterioles it was detected an increase in their tone, especially among patients with hypertension of the II stage. On the part of capillaries, among patients of the main group, their tortuosity was noted – in 62.5% of patients with the II stage of AH, also in 54.17% of cases it was revealed a granular blood flow. Also among this group of patients, microaneurysms were revealed in a third of patients, areas of depletion were revealed in 41.67% of patients.

Among extravascular disorders, in patients with I-II degree AH, were revealed hemorrhages, retinal edema, thickening of the neuroepithelium and pleximorphic layer, smoothing of the foveolar fossa, edema of the macular area, also it was detected accumulation of fluid between the layers.

The study of the peripapillary zone of the retina revealed a significant thickening of the layer of nerve fibers in patients with the I stage of AH up to $(176.4 \pm 9,75) \mu\text{m}$ in 33.33% of people, under the II stage – to $(190,24 \pm 12,53) \mu\text{m}$, in 54.17% of cases, against the index rules – $(102.5 \pm 6,47) \mu\text{m}$. In 12.5% of cases, the RNFL index was significantly lower than the obtained norm – $(93.78 \pm 6.19) \mu\text{m}$.

Currently, it is necessary to continue the study of the retina in patients with hypertension to determine the risks of damage caused to target organs and evaluate the effectiveness of prescribed antihypertensive therapy.

Keywords: target organs, retina, fundus, visometry, vascular changes, non-contact angiography.

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1. Introduction

Currently, arterial hypertension is one of the leading problems of modern medicine, not only due to the wide spread of the disease among the population, but also the place that it occupies in the structure of mortality and growth of disability.

The nature of the vascular bed changes – from the main blood vessels to the capillaries at the arterial hypertension (AH) shows the clinical course of the disease, the effectiveness of antihypertensive therapy designed, and the risks of possible complications.

Stress integral formation of hypertension accompanied by mental disintegration, and neurohormonal somatovegetativnyh processes, with the entire range of stress-realizing and stress-limiting effects occur at the level of microcirculatory (ICR), cellular metabolism (Park, 2016:36; Forouzanfar, 2017:2). This disturbance in microcirculatory line subtly reflects changes not only in hemodynamics, but the system homeostasis in general, the development of compensatory or pathological reactions (Khaisheva, 2013:49; Hoppe, 2007: 25).

In recent years, of particular interest are studies of the retina as part of the "exposed" brain in patients with hypertension. From this perspective it is assumed that the processes that occur in the blood vessels and nerve ganglia retina is the reflection process along certain areas of the brain. Therefore explore spare condition in the retina – changes of its structures and functions at the background of hypertension, a condition of its blood supply, will indirectly give the understanding of the features of intracranial blood flow in the basin a. ophthalmica, branches of the anterior and middle cerebral arteries, and it is also possible to detect certain functional changes in these parts of the brain at the background of a permanent increase of blood pressure.

The microcirculatory tract, is the place where the transport function of the cardiovascular system, is ultimately realized and transcapillary exchange takes place. The bulk of intravascular continuum, in the formation of high blood pressure, is formed in the MC system (Hussain, 2017:27). Therefore, the study of characteristics of microvascular hemodynamics and structure of the retina let us understand the early mechanisms of formation, features of the course and the risks of hypertension complications, as well as the effectiveness of prescribed therapy.

In this time ophtalmoscopic research is a mandatory element of the examination of patients with hypertension. At the same time we know that routine at ophtalmoscopic diagnostic has some limitations and sometimes low diagnostic value, especially in the early stages of hypertension, under the study of ultra- structural characteristics of the retina. Early objectification of the condition of blood vessels and nerve cells of the retina in arterial hypertension using a valid diagnostic equipment makes it possible to take a step forward and identify in a timely maner the risks and possible degree of early damage to target organs (Khaisheva, 2013:49; Jumar, 2018:11). Now there is a close connection between retinal and cerebral vascular bed and the identity of the ultrastructure of the walls retinal capillaries and capillary ultrastructure CNS. In 82% of cases, changes in the vessels of the retina and brain in patients with AH are similar (Chobanian, 2003:289). At the same time it is found that the nature of changes in retinal blood flow can act as a predictor of stroke, CHD (Schneider, 1993:24).

Therefore, in clinical practice study of the structural and functional condition of the retina, features its blood supply through the use of modern non-invasive methods, including optical coherence tomography is relevant, as it allows to detect early changes in the retina of the eye, which is especially important in the treatment of primary and asymptomatic manifestations of AH and to predict the risks of possible complications and the effectiveness of prescribed treatment.

Objective: To investigate the structural and functional and condition of the retina hypertension I-II stage using optical coherence tomography with angiographic function.

2. Materials and methods:

The study was based on data from 54 patients with hypertension I-II stage, aged 35 to 62 years, who formed the main group.

The criterion for including the patients to the patient population was them being diagnosed with hypertension in accordance to MOH Ukraine № 384, 2012, amendments Ukrainian Heart Association for the prevention and treatment of hypertension (2014), guidelines for the conduct of hypertension European Society of Cardiology and the European Society for arterial hypertension (*Triantafyll, 2014:8; Jumar, 2018:11; Khaisheva, 2013:3*). The severity of hypertension was determined in I – II stage of the disease.

The study did not include patients with hypertension of III stage, with signs of chronic coronary heart disease, heart failure, cerebral circulatory disorders, chronic bronchopulmonary pathology, diabetes, kidney and peripheral artery disease, hypertensive neuropathy.

To the control group with practically healthy people were included 14 persons of the same age (44-56 years) who do not show any ophthalmopathological diseases.

Patients in both groups were examined in an public polyclinic number 3 Ministry of Ukraine, and ophthalmologic center "Optics of your City", Ivano-Frankivsk.

During the research, except for routine diagnostic methods – measurement of blood pressure, ECG, visometry and blood pressure monitor it was used special ophthalmic techniques – visualization of the structures of the retina with optical coherent tomography and (RTVue XR Avanti OCTA (Optovue, Inc, with AngioVue Software 2.0) with real-time angiography function.

Use of small size OCT-angiograms (2 × 2 mm, 3 × 3 mm) allowed to get better visualization of small vasculature, retinal capillaries and choroidocapillaris, while images were more larger caliber and will Roux (6 × 6 mm, 8 × 8 mm) showing the condition of large vessels.

In addition, for the evaluation of images of macular and optic nerve fibers mode ONH was used. In order to determine the thickness of the layer of ganglion cell and the inner plexiform layer it was used complex mode angiography (*Kotlyar, 2007:64; Lee, 2018:9; Jia, 2012:20*).

Thus OCT-A was used for evaluating the condition of the superficial not only vessels and networks, but also the layer of nerve fibers, the layer of ganglion cells, the deepest vascular plexuses (vascular mesh inner nuclear layer of) of the retina, each of which has an independent pathophysiological and practical significance (*Park, 2016:11*).

Moreover, the state of FAZ (foveal avascular zone), the densit of the macula and foveolar zone were also evaluated (*Hussain, 2016:27; Yu, 2015:5*).

Patients, who met the criteria in 10-14 days before the research, stopped taking hypertensive therapy, which was prescribed before. If case of increasing of the blood pressure during this period, short-acting antihypertensive agents were prescribed. Also, patients were not receiving assigned before antihypertensive agents, disaggregants, hipolipidemic and vasoactive drugs.

The research was performed in accordance to the requirements of the Helsinki Declaration, all patients signed a voluntary information agreement in order to participate in.

For statistical processing of the data obtained during the study it was used a package of computer programs Microsoft Excel Started 2016, Statistica 10.0 (StatSoft Inc.). The criteria of Kolmogorov-Smirnova was used to check the hypothesis of adequet distribution. The significance of quantitative difference was evaluated using Student's t-test for an independent sample. The difference was considered significant at $p < 0,05$.

3. Results and their discussion

During the research it was found that the I st. AH was revealed in 30 patients, men and women – 12 and 18, respectively; 24 people were diagnosed with II st. AH, 9 men and 15 women, respectively. In patients with I st. AH systolic blood pressure (SBP) was $148,4 \pm 3,06$ mm Hg, (DBP) – $74,4 \pm 1,18$ mm Hg. ; in patients with II st. hypertension SBP was $152,67 \pm 2,16$ mm Hg, DBP – $84,63 \pm 1,78$ mm Hg. Blood pressure among the control group was: CBP – 128.2 ± 1.86 mm Hg, DBP – 76.54 ± 0.69 mm Hg.

According to the performed visometry, visual acuity was significantly reduced among 56.67% of patients with hypertension of the I degree and was up to 0.46 ± 0.04 , among patients with II stage of arterial hypertension visual impairment was found in 79.17% of people in this group – 0.35 ± 0.06 . In the control group, the index and visual acuity were – 0.86 ± 0.04 .

Ophthalmoscopic picture, according to OCT among patients of I-II stage of AH, was presented by the results of these vascular and perivascular research.

The detected vascular changes were common for patients with I-II stage of AH.

They included arterial and venous caliber irregularities, microaneurysms, vascular tortuosity, spasm and pulsation of arterioles, intermittent blood flow, areas of stasis, the presence of redness areas and depletion, the presence of collaterals.

Among extravascular disorders, that were found in patients with I-II stage of AH, single or multiple hemorrhage was noted, swelling of retinal thickening, neuroepithelium and plexymorphic layer, so called the type of "cotton wool spot", which could even lead to irreversible loss of nerve fibers of retina, smoothed on art and foveolar pits, swelling of the macular area, accumulation of fluid between the layers cystic formations.

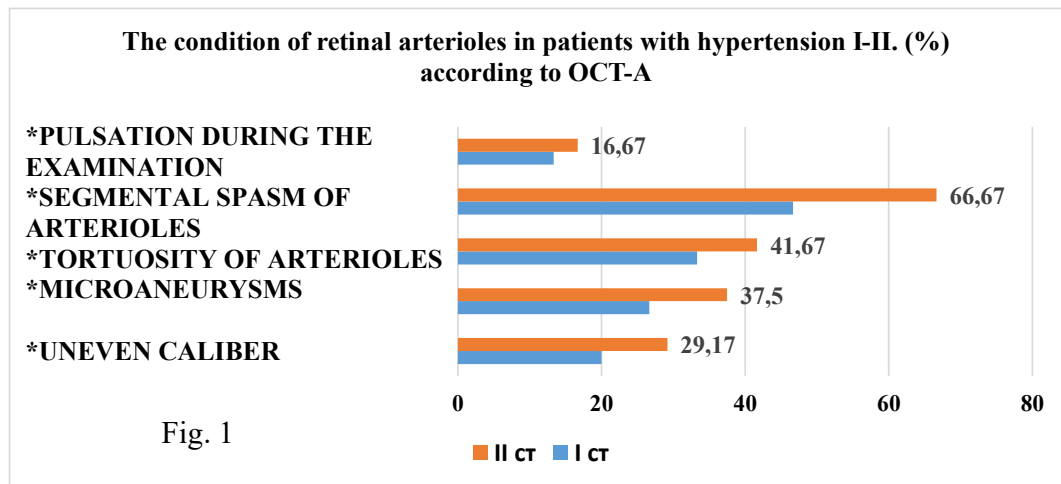


Figure 1. presents the changes found in the retinal arterioles in patients with I-II stage hypertension

Thus, it was found that most often the retinal arterioles show an increase in their tone, especially among patients with hypertension of the II stage (66,67) %, against (46,67) % of the indicator obtained at East AH. Their tortuosity and the presence of microaneurysms were also often detected, uneven caliber of arterioles. In a small number of patients, vascular pulsation

was noted during the study, which is not observed in healthy people. The above changes were mostly found among patients with II stage of AH.

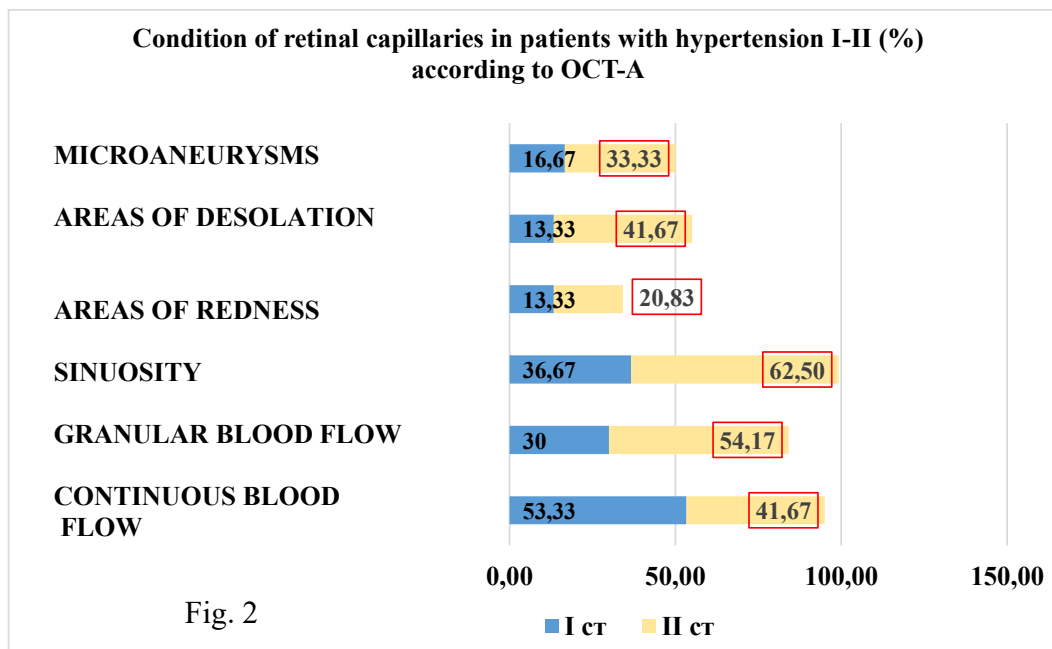


Figure 2. The results of the study of the condition of the retinal capillaries in patients with I-II stage of AH

It was found that most changes in the capillaries of patients from the main group were recorded as they wriggle – in 62.5% in patients with the II stage of AH, also in 54.17% of cases there was a granular, intermittent blood flow. Also among this group of patients, a third of patients had microaneurysms, 41.67% of patients had areas of depletion (not reperfusion), which indicates ischemia. Moreover, among patients, the decrease in total MC was mostly observed in the paramacular area. In patients with I stage of AH, changes on the part of the retinal capillaries also took place, but were found much less frequently than in the group of patients with II stage of AH, except for the rate of continuous blood flow, which was higher and was observed in 53.33% of cases.

It should also be noted, that in some patients ($n = 9$) with the II stage of AH, it was detected isolated signs of stasis, which was not observed in the patients with the Ist stage of AH.

Regarding retinal veins, they also underwent significant changes, which are often combined with each other and confirm the systemic and failures in hypertension (Table 1).

During ophthalmoscopy, half of the examined patients showed a dark shade of veins, their dilatation – from moderate to significant, often with tortuosity of the veins. The venous plethora, that was revealed at the same time, indicates that part of patients with the I-II stage of AH, face problems with blood flow, which leads to varicose veins, venules and the risk of stagnation with its subsequent consequences. In addition, in some patients with moderate dilatation and venous plethora, the collateral network was significantly manifested.

In general, this indicates the progression of changes in the fundus, especially in patients with the II stage of AH. In the control group of patients, against the background of normotension, there were only isolated cases of uneven venous caliber and moderate dilation. In the fundus, except for modified forms of vessels, in patients from the main group, were also found bleeding and white lesions, confirming the mechanisms of retinal involvement in the process of alteration and degenerative changes.

Table 1

Characteristics of the retinal veins among patients with hypertension I-II st.

Types of retinal vein disorders	Arterial hypertension (%)		Control group (n = 14)
	Stage I (n=30)	Stage II (n = 24)	
Caliber unevenness	33.33	45.83	14.29
Wrengle	40, 0	66.67	
Moderate expansion	33.33	33.33	14.29
Saccular extension	10	29.17	
Sharp dilatation		25	
Pendulous blood flow	13.33	20.83	
Venous plethora	36.67	58.33	

During the study of the retina on the periphery were found retinal hemorrhages in the form of stripes, in the patients with I stage of AH -23.33%, and in 41.67% of patients with the II stage of hypertension. Hemorrhages along the vessels of nerve fibers, around the OD. were also detected in 6.67% and 20.83% of cases, respectively, in the patients with I and II stage of AH. Their formation is often associated with the loss of compactness nerve cells, hidden microaneurysms, diapedesis of erythrocytes microtrombosis against the background of increased blood pressure (*Aznabayev, 2015:248; Chalam, 2016:11*).

Also in some patients, there were revealed single hemorrhages in the outer plexiform layer on the background of relevant clinical symptoms.

Detected disorders of microcirculation, stagnation, tissue hypoxia, impaired permeability of cell membranes may be the trigger for the development of edema of the layers in the macular area in hypertensive patients (*Lavia, 2019:39; Schneider, 1993:24*). During the study it would be established that such pathological changes were observed not only among patients with II st. of AH, but also among patients with I st. arterial hypertension (Table 2).

Table 2

Characteristics of retinal structural changes among patients with hypertension I-II

Types of structural retinal changes	Arterial hypertension (%)	
	I st. (n = 30)	II st. (n = 24)
Retinal edema(peripapillary and macular areas)	30	54.17
Deformation of the foveolar contour (profile)	13.33	29.17
Smoothing of the foveolar fossa	20	58.33
Thickening of the layer of nerve fibers	10	54.17
Accumulation of fluid between the layers of the retina	13.33	41.67
Cystic formations (inner nuclear layer)	16.67	37.5
Cotton-shaped formations(plexiglass layer)	23.33	37.5

Thus, according to OCT-A in 30% of patients with I st. of AH it was observed retinal edema, in patients with II st. of AH – it occurred in 54.17% of cases (Table 2).

In the peripapillary and paramacular zones, retinal cotton-like "exudates" of gray color of various sizes, without clear boundaries, were also observed. The appearance of cotton-shaped foci is associated with the occlusion of the microcirculatory tract in this area.

In addition, 3 patients with II AH marked swelling of the OD in the form of light smearing, blurred edges.

The accumulation of fluid in the interlayer space in some patients with hypertension I-II can pose a threat to compression of blood vessels, ganglion cells.

Study of the condition of the peripapillary zone of the retina in patients with hypertension I-II found at on the fat spare nerve fiber layer (SNF – RNFL), during the first degree AH to $(176.4 \pm 9,75) \mu\text{m}$ in 33.33% of persons, against the norm – $(102.5 \pm 6,47) \mu\text{m}$ obtained in the control group ($p < 0.05$). In patients with II hypertension in 54.17% of the thickness and SNF Estates Ia $(190,24 \pm 12,53) \mu\text{m}$, significantly dominating the norm among the remaining patients of this group in 12.5% of cases, the thickness SNF was significantly lower than the resulting rules – $(93,78 \pm 6,19) \mu\text{m}$.

Hemorrhages detected during examination in some patients with hyper tension may obscure the macroaneurysm.

When examining patients with hypertension I-II. the decrease in the density of the macula at the level of the superficial and deep venous plexuses, as well as the deepening of the foveolar avascular zone was revealed in some of them.

Quantitative assessment of the macular and peripapillary vascular network using OCT angiography revealed a decrease in vascular density in some patients with hypertension. Reduction of peripapillary and macular microcirculation in the retina in patients with hypertension, perfusion defects may precede structural changes in OD and visual field defects. In such a situation, the rate of loss of vascular density in the macular area may exceed the rate of loss of ganglion cells of the macular area (*Aznabayev, 2015:248; Lumbroso, 2014:208*).

Table 3. according to OCT-A presents the thickness of the individual layers of the retina. Thus, it was found that most often changes in the thickness of the retinal layers in the form of their significant thinning were found among patients with II st. AH in the upper and lower quadrants in the macular layers of nerve fibers, layers of ganglion cells, pleximorphic layer.

At the same time, patients with I st., significant thinning of hypertension was observed only on the part of the ganglion cell layer. It was found that in some patients with II the disease, it was marked the thickening of the inner nuclear layer. Thus, studies of the characteristics of the retinal layers with the help of OCT-A indicate a certain relationship between the stages of hypertension and changes in visual function and the development of retinopathy.

Also attention was given to correlation links between the level spasm of arteriolar tortuosity and reduction of their visual acuity ($r = -0,478$; $p < 0.01$), between wriggle with dough capillaries, blood flow and granular layer, the thickening of macular nerve retinal fibers ($r = 0,416$; $p < 0,05$).

Table 3

**The state of retinal layer thickness in patients with hypertension
and in the control group (μm)**

Indicator of retinal layer thickness	Hypertension		Control on the group
	I st.	II st.	
	1	2	3
macular layer of nerve fibers:- upper quadrant- lower quadrant	11 9.4 \pm 12, 6692,51 \pm 8,86	1 02, 11 \pm 7,16 p 1-2 > 0, 5 86,51 \pm 6,86 p1-2>0,5	123, 7 4 \pm 10,36p1,2-3<0,05 112,61 \pm 7,14 p1,2-3<0,05
layer of ganglion cells:- upper quadrant- lower quadrant	96, 17 \pm 5.0690, 26 \pm 4.78	8 1, 45 \pm 5.74p1-2<0.0577.22 \pm 6.11p1-2<0.05	96.57 \pm 6.73p2-3<0.0594.85 \pm 6.12p2-3<0.05
inner plexiglass layer :- upper quadrant- lower quadrant	68, 36 \pm 3.9262.68 \pm 4.16	66.42 \pm 3.81p1-2>0.560.73 \pm 4.07p1-2>0.5	77.38 \pm 4.28p1,2-3<0,05 73,22 \pm 5,12p1,2-3<0,05
inner nuclear layer- nasal quadrants	31.15 \pm 1.67	35.69 \pm 3.10p1-2>0.5	26.35 \pm 2.78p1.2-3<0.05
Outer plexiglass layer- nasal quadrants	23.6 \pm 2.43	27.12 \pm 3.16p1-2>0.5	18.51 \pm 1.84p1.2-3<0.05

4. Discussion

Despite the recommendations of the European Society of Cardiology and the European Society of Arterial Hypertension of 2003 (ESH / ESC, 2003) to the exclusion of the eye from the list of target organs, a report of the National Committee on prevention, diagnosis and treatment of high blood pressure USA (JNC7) retinopathy is recognized as one of the significant markers of target organ damage in hypertension. Based on the recommendations of JNC7, the presence of retinopathy may be the basis for initiating antihypertensive drug treatment, even in patients with first-degree hypertension who have no other target organ lesions (*Chobanian, 2003:289; Plante, 2002:51; Schneider, 1993:24*).

Currently, there is no consensus on the need for retinal examination in patients with hypertension to determine the degree of cardiovascular risk and assess the effectiveness of prescribed antihypertensive therapy. Although previous discussion cases took place before the advent of valid digital diagnostic technologies.

The existing temporary inconsistency in the definition of the eyes as the target organs, the need to study the state of the retina with hypertension, dictates the need for continued scientific research in this direction.

We found that hypertensive retinopathy does not always correspond to the duration and severity of hypertension: so against the background of the first degree hypertension next to the picture of the normal fundus, in the rest of the patients there are lesions of the retinal structures, which do not exclude asymptomatic cerebral lesions.

The degree of microcirculation disorders in hypertension is one of the key markers that may indicate damage to target organs. It is a violation of the microcirculatory tract subtly reflect the early changes in the central hemodynamics, homeostasis, the development of compensatory or pathological reactions in the fluctuations of blood pressure (*Hoppe, 2007:10*).

The method of OCT-A for diagnostic informativeness outweighs the results of other methods of capillaroscopy, including using injectable angiography. OCT-A allows to detect morphological and functional changes of the retina in the early stages of hypertension, to monitor them, to monitor the course of the disease and the effectiveness of prescribed treatment. And also timely diagnose the risks of possible acute and chronic complications.

The study confirmed the relationship between systemic hypertension, deterioration of the microcirculatory tract and the structural picture of the retinal layers on the background of decreased visual acuity. The most important issue is to assess the impact of prescribed antihypertensive therapy on the microcirculatory tract, as a trigger link that provides the interaction of metabolic, neurohumoral, structural, endothelium-dependent and other factors affecting the reactivity of the vascular wall.

5. Conclusion

In the light of the achievements of modern technologies of eye examination in the treatment of hypertension, the method of optical coherence tomography should be included in the mandatory screening diagnostic tests at the level of primary health care.

Simultaneous assessment of the structural and functional state of the retina using OCT-A allows you to get a better idea of the degree and risks of target organs in hypertension, the risks of possible acute complications that occur in hypertension in a particular patient. Which contributes to a more accurate definition of the target blood pressure and improvement of therapeutic tactics.

An important stage of the study is to study the effect of prescribed antihypertensive therapy on the morphofunctional state of the retina in patients with hypertension. The resulting positive dynamics of the detected retinal changes in hypertension – improvement of retinal microcirculation, neuroepithelium under the influence of prescribed antihypertensive treatment, may indirectly reflect the improvement of cerebral circulation, metabolic support of cerebral structures and generally confirms the correctness or incorrectness of choice.

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MYOPIA AND ITS PREVENTION USING THERAPEUTIC PHYSICAL TRAINING IN SCHOOLCHILDREN

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Summary

Vision is the one of the most significant function of human body. Many factors can influence on health of eyes and lead to the problem with vision. The aim of the work was to analyze information on myopia in school-age children and to make a set of training exercises for its prevention in them. In article present an overview of problem of myopia in school-age children, it causes and risk factors, possibilities of it prevention by use of different methods, including therapeutic physical training. Proposed complex of exercises designed for children of middle and high school. It includes 13 exercises for 30 min of training twice a day outdoor or in gymnasium. Exercises can be done anone or in pairs. Complex is recommended to children with myopia and children, which have normal vision, for the prophylaxis of impairment of vision. Complex can be used from childhood to to achieve the maximum effect, keep in mind the significant load on the visual analyzer of a modern child.

Keywords: vision impairments, causes, treatment, prophylaxis, complex of physical exercises, children.

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1. Introduction

Vision is one of the main function for obtaining information in human. Vision is an important factor in human orientation, which is absolutely necessary throughout life. Vision is also important for success in school. Problems and vision in students limit the ability to learn in all groups of subjects, which may ultimately affect success in life (*Orlova & Kostetska, 2014; Burnett et al., 2018*).

Vision problems are quite common among school-age children, and today this problem is becoming more widespread due to the digitalization of society and the transfer of much of children's contacts to social networks accessible from smartphones and tablets, as well as the spread of computer games available via the Internet (*Lee et al., 2019*).

According to the Center for Medical Statistics of the Ministry of Health of Ukraine, over the past 10 years, the number of children with pathology of the eyes has increased significantly. Every year, 840,000 cases of ophthalmic diseases are registered in children in Ukraine. There are 10.7 thousand blind and partially vision children in Ukraine and their number grows by 1 thousand every year. According to the results of annual preventive examinations of students, the frequency of detection of reduced visual acuity among students during schooling increases by 3-5 times and at the end of study in school is 30% (*Kostetska, 2012; Guidelines, 2014*).

The most common vision problems in children are more often myopia and less often hyperopia. These common vision problems are easily corrected with glasses or contact lenses, however, the choice of glasses or lenses should be based solely on the expert opinion of a doctor (*Rykov et al., 2019*).

It is important to note that a visit to an ophthalmologist should also take place for prophylactic purposes, ie it is desirable even in the absence of obvious signs of vision problems. According to American guidelines, children must undergo an eye examination no later than 6 months, then again at the age of 3 years, and immediately before school. School-age children need to be examined every two years from the start of school, even if they do not have vision problems. If there are problems, the survey should be conducted every year (*Guidelines, 2014; Chang et al., 2017*).

In 2019, Ukraine has developed its own standard of survey “Comprehensive examination of the eye and vision: clinical guidelines based on evidence”, which contains a detailed description of the survey procedure, including for children (*Rykov et al., 2019*).

Frequent survey by an ophthalmologist are important for children, because during the school years the prescription of a child’s glasses can change quite often.

In addition, in visual lesions it is very important to avoid complications that can be provoked by impaired eye hygiene, excessive physical and mental stress, etc. (*Kostetska, 2012; Orlova & Kostetska, 2014*). For a number of cases, a special regime of physical activity is developed to prevent visual problems and preventive exercises are developed to correct it (*Wu et al., 2013; Chang et al., 2017; Burnett et al., 2018*).

For the prevention of eye disease in schoolchildren, a system of special training exercises designed to prevent eye fatigue can be used. These exercises are done twice or thrice a day and during lessons involving high visual stress, such as computer science (preferably under the supervision of a teacher) (*Wu et al., 2013; Chang et al., 2017; Burnett et al., 2018*).

Thus, there is an urgent need to develop tools for early detection and effective vision correction in school-age children, which will ensure their effective learning and safe leisure activities (*Guidelines, 2014; Burnett et al., 2018; Rykov et al., 2019*).

The aim of the work is to investigate the effectiveness of physical culture in the prevention of visual impairments and myopia among children of middle and high school age.

The aim of the work was to analyze information on myopia in school-age children and to make a set of training exercises for its prevention in them.

2. Myopia and its causes

During the growth of the eyeball changes its shape, convexity of the cornea and lens and up to 9-12 years, the relationship between the refractive power (optical component) and the length of the axis (anatomical component). If in the process of eye formation the correspondence between optical and anatomical components is established, then normal (emetropic) refraction develops (*Wu et al., 2013*).

However, there are cases of non-compliance of refraction with the norm, among which we can distinguish myopia.

Myopia (Greek “myops” – “squint”), or myopia, is one of the most common visual lesions. Short-sighted people close their eyes to “sharpen” and see something in the distance (Kyzymenko & Snyadanko, 2009; Tsybul'ska, 2019).

Myopia is a defect of vision in which objects are clearly visible nearby and poorly (in the form of a blurred image) – in the distance. More than 30% of all inhabitants of our planet suffer from myopia (in some countries, for example, in Japan, this indicator exceeds even 60%).

In a person with good eye vision, the image is focused on the retina (as it should be). But with myopia, the focus is in front of the retina, which leads to blurred vision. The reason may be an elongation of the eyeball or a change in the refractive power of its optical system (cornea or lens). Many people have both of these disorders at once (Domashenko, 2008; Orlova & Kostetska, 2014). Thus, myopia is a refraction during which parallel rays coming from distant objects intersect in front of the retina and do not reach it. This refraction may be due to the longitudinal axis of the eye being too long (more than 22.5-23.0 mm) or greater than the normal refractive power of the eye. In myopia, glasses with scattering biconcave lenses are prescribed, which reduce the refraction of rays and focus the image of the object on the retina (Jonas et al., 2016; Tsybul'ska & Pashkova, 2018).

The ability of the eye to distinguish the smallest distance between two points, which is achieved when there is one unexcited cone between two excited cones, is called visual acuity. A measure of visual acuity is the angle formed between the rays going from two points of the object to the eye. The smaller this angle, the higher the visual acuity. Normal visual acuity is considered when this angle is equal to one angular minute (Li et al., 2015; Tsybul'ska & Pashkova, 2018; Tsybul'ska, 2019).

Visual acuity is considered highest when the image hits the area of the central fovea or macula. To determine visual acuity use tables of letters, numbers, broken rings and drawings of different sizes (for preschoolers). An indicator of visual acuity for each eye is a row of the smallest objects, which was identified without errors by the subject. To the right of the line is the visual acuity – from 0.1 to 2.0 units. Determine visual acuity for each eye separately, at a distance of 5 m from the table, in intense light.

Visual acuity in children with normal refraction increases with age. Thus, in 4-5 years it is on average 0.80%, in 5-6 years – 0.86%, in 7-8 years – 0.91%. At the age of 10 to 15 years, visual acuity increases from 0.98% to 1.15%.

During childhood, this type of refraction, such as hyperopia, predominates. The frequency of normal refraction and myopia is very low. In later age periods, hyperopia occurs less frequently, and emetropia and myopia more often. During schooling, the number of short-sighted children increases 5 times from school entry to graduation. Lack of light significantly affects the formation and progression of visual lesions in school-age children. Visual acuity and resistance to clear vision in schoolchildren are greater at the beginning of lessons and weaken by the end of them. The attenuation is sharper the lower the light level. An important factor that leads to a decrease in visual acuity, development and progression of myopia in students during school (even with sufficient levels of lighting in classrooms and endurance within the normative limits of other parameters of light factors) is the workload, its duration during the day (French et al., 2013; Holden et al., 2016).

Significantly expressed in children and adolescents is the relationship between the frequency of myopic refraction, the state of phosphorus-calcium metabolism and the duration of daily exposure to ultraviolet radiation. Phosphorus-calcium metabolism is disturbed in children

who have little or no walks at noon, when the intensity of ultraviolet radiation is high enough. This results in changes in the tone of the eye muscles. Weakness of these muscles at high visual load and insufficient light causes the development of refraction anomalies and their progression (Ip et al., 2008; Duhina, 2016).

The first signs of myopia may be a schoolchildren's complaint that he has begun to have difficulty seeing what is written on the board. When he reads, he raises the book close to his eyes, tilts his head sharply while writing, squints his eyes while examining objects.

Myopia usually develops under the influence of long and chaotic work at close range without following the hygienic norms of reading or writing. Rickets, tuberculosis, rheumatism and other common diseases can create a breeding ground for the development of myopia (Ip et al., 2008).

Myopic refraction from 3.25 D and above at visual acuity with correction from 0.5 to 0.9 is the basis for enrollment of children and adolescents in III and IV health groups, ie patients. In case of any visual deviations in children and adolescents (except catheter vision, acuity, light perception, field of vision and other changes) they need close attention of an ophthalmologist and strict adherence to all his prescriptions at school and at home (Tsybulska & Pashkova, 2018; Tsybulska, 2019). Given the degree of loss of visual acuity (measured in diopters) distinguish myopia:

- weak – less than 3.0 diopters (determined in about 82% of persons). It is characterized by an increase in eye length by 1-1.5 mm. With such a violation of refraction, a person sees the outlines of distant objects a little blurry;

- average – 3.25-6.0 diopters (determined in about 12% of persons). It is characterized by elongation of the eyeball by 1-3 mm. At this stage, the membranes and vessels of the eye undergo changes, stretch and thin. Vision in the distance is reduced, and nearby a person sees clearly and distinctly at a distance of only 20-30 cm;

- high – more than 6.0 diopters (determined in about 6% of subjects). It is characterized by an increase in the length of the eyeball by 3 mm or more. This threatens a significant thinning of the retina and vascular membranes of the eye and a significant reduction in visual acuity up to 30 D and more (Tsybulska, 2019).

With mild to moderate myopia, hypermetropia, astigmatism, the doctor should examine schoolchildren once a year, and with high myopia (more than 6.0 D) twice.

According to various criteria, myopia is divided into several types. If it is associated with congenital anomalies of the eyeball, it is congenital myopia. Rare – in 2% of cases, the child is born with an enlarged (compared to normal) eyeball. In the vast majority of cases, myopia appears at school age. Defects in the synthesis of connective tissue protein (collagen), necessary for the structure of the sclera, are inherited. Weakening of the scleral tissue leads to an increase in the size of the eyeball and, as a consequence, to the development of myopia. If both parents are myopic, the risk of developing myopia in a child is 80%, if one – 40%. In other cases, it is an acquired myopia (Cooper & Tkatchenko, 2018; Tsybulska, 2019).

If vision deteriorates by more than one diopter per year, it is progressive myopia that requires special attention and treatment. Myopia progresses most intensely in children during the school years, when pressure on eyes are particularly high.

Myopia can be true, ie caused by the structure of the eye, and false – when vision deteriorates due to accommodation disorders, and anatomical changes (for example, elongation of the eyeball) does not occur (Li et al., 2015; Holden et al., 2016).

In the prevention of myopia among schoolchildren the great importance belong to:

– the distance from the eyes to the top and bottom line on the page of the book or notebook. Different distances to these lines cause fatigue, because the shape of the lens must change so that the text can be clearly seen (*Kostetska, 2012*). The solution can be realized through the use of a desk with a tilt of the table cover. This facilitates the work of the schoolchildren, because when the book is placed on an inclined plane, the top and bottom lines of the page are approximately the same distance from the eyes (*Datsenko et al., 2001*);

– rules of personal hygiene: frequent washing of hands with soap, frequent change of towels for personal use, handkerchiefs, etc. helps to prevent infectious eye diseases, the severe consequences of which are visual impairments up to complete loss;

– nutrition is essential, the degree of its balance in terms of nutrients and especially vitamins, especially vitamins A, B₂ and B₆, C (*Guidelines, 2014; Colenbrander, 2018*);

– prevention of eye injuries in schoolchildren has a special place among children of all ages. It includes strict adherence to safety rules in physical education lessons, in labor lessons, during experiments in chemistry, physics and biology lessons;

– the teacher should also monitor the health of children by monitoring their placement in the classroom in accordance with medical recommendations, as well as controlling the distance of children from the table surface. In order to prevent eye disease in students, the teacher must master a system of special training exercises and teach it to children. They are performed 2-3 times during the school day and during tasks related to high visual stress, such as computer science (preferably under the supervision of a teacher) (*Wu et al., 2013; Chang et al., 2017; Colenbrander, 2018*).

– light regime in educational premises. The desk or desk should be placed so that natural light falls on the child's left, if he is not left-handed. In the absence of daylight, artificial lighting should be used. Visual acuity and stability of clear vision in schoolchildren are greater at the beginning of lessons and weaken by the end of them. The attenuation is sharper the lower the light level. Lack of light significantly affects the formation and progression of visual lesions in school-age children. This should be taken into account when planning training facilities and the location of equipment in them (*Datsenko et al., 2001*);

– posture also helps to preserve vision. To prevent postural disorders can include sports or dancing and limiting time for sedentary work or leisure on the computer or TV (*Datsenko et al., 2001; Wu et al., 2013; Colenbrander, 2018*);

– quality of textbooks and other printed products. When purchasing such goods, it is mandatory to require documents on product certification and hygienic conclusion on its compliance, if such information is not indicated on the product itself (*Datsenko et al., 2001*).

The task of any correction of myopia is to weaken the refractive power of the eye so that the image falls on the central area of the retina. To date, there are more than 20 ways to correct myopia (*Tsybulska, 2019*). Treatment of myopia in most cases aims at conservative approaches:

– correction of myopia by glasses. After the survey, lenses are prescribed taking into account the degree of myopia and diopters. With a low degree, the glasses may not be intended for permanent use, but from time to time if clearly needed.

– contact correction – treatment of myopia with contact lenses. These are convenient tools that can correct even the highest myopia (minus 15 – minus 22 diopters), while quite easy to use.

– gymnastics for the eyes. A series of gymnastic exercises for the eyes will help to normalize vision in low myopia, make the eye muscles more stable and invulnerable to stress.

– medications. Sometimes special eye drops are prescribed, which also reduce tension and relax the eye muscles.

- proper nutrition, which contains all the necessary vitamins and trace elements, improves the condition of the eye organs and protects them from the progression of myopia.
- laser correction. A very common way of correction of myopia. During the intervention, the cornea is corrected, due to which vision is restored even with a very high degree of myopia (Ruban, 2016; Moiseyenko et al., 2018; Dmytriv et al., 2019).

3. Therapeutic exercise against myopia

Therapeutic physical training (TPT) has a separate area, in which complexes of physical exercises for the eyes have been developed to help prevent the development of visual impairments and can act as an element of correction of such problems.

The essence of TPT is that these exercises:

- ensure the preservation of the health of the system of vision;
- allow to use the acquired skills independently in extracurricular activities and later in life (Milyukova & Yevdokimova, 2003).

The principles of TPT are aimed at strengthening physiological and psychological health, namely:

- the principle of motor activity;
- the principle of health regime;
- the principle of implementation of effective hardening;
- the principle of psychological comfort;
- the principle of reliance on the individual characteristics and abilities of the child (taking into account the leading temperament) (Milyukova & Yevdokimova, 2003; Duhina, 2016; Ruban, 2016).

In addition, eye exercises are combined with other areas of therapeutic exercise, which adds the principle of forming the correct posture and skills of rational breathing.

In general, for the prevention of problems of vision and their correction should be used a comprehensive approach, including: the mode of dynamic poses, a system of sensor-search motor-coordinator training, open classroom space, environmentally friendly printed materials, multicolored supports on cruciform handles, universal symbols, massage mats for feet, desks, etc. These techniques in the complex are quite expensive, so it is impossible to organize them in every school, however, the simplest actions (physical exercises for the eyes) is accessible to all and requires only time (Duhina, 2016).

Exercise has a tonic (stimulating), trophic (compensatory) and normalizing effect on the body.

The tonic effect of exercise is expressed primarily in the stimulation of motor-visceral reflexes, increased afferent impulses of proprioceptors and stimulates cellular metabolism in the neurons of the central link of the motor analyzer, resulting in increased trophic effects of the central nervous system on muscles and internal organs, ie for the whole organism (Milyukova & Yevdokimova, 2003).

The effect of regular exercise is also on the cardiovascular system, which indirectly affects the visual analyzer by improving its blood supply. Thus, exercise is an effective factor in improving the general condition of the body, enhancing the adaptation of all systems to increasing physical activity and increasing their functional abilities.

The body's training leads to a reduction or disappearance of the subjective manifestations of various diseases, including a reduction in the load on the visual analyzer, significantly improves the physical condition and efficiency of the person.

Among other methods of stimulating or tonic action, physical exercises have certain advantages, which are their physiological and adequacy, universality (a wide range of physical exercises), the absence of negative side effects (with the correct dosage and rational method of training), the possibility of long-term use, which practically has no restrictions, passing from medical to preventive and general health (*Milyukova & Yevdokimova, 2003; Kadochnikova & Khorkova, 2017*).

The trophic effect of exercise is the basis of one of the mechanisms of physiological regulation of tissue metabolism through trophic reflexes. This function is performed by various parts of the central nervous system, including the cerebral cortex and hypothalamus. The effect is carried out on the relevant parts of the visual analyzer, located in the human brain.

With a lack of tonic and stimulating effects on the part of the central nervous system, the tone of skeletal muscles and the frequency of proprioceptive impulses decreases, which, in turn, affects nerve trophism. This impulse, which is amplified during exercise, stimulates nerve trophism and restores the normal relationship between the musculoskeletal system and physiological systems of the body (respiratory, cardiovascular, etc.). The functional state of the nerve centers that regulate the work of various organs changes. This adjustment is maintained and intensified, contributing to the trophism and performance of muscles, and not only skeletal but also internal organs, especially the myocardium. The positive effect of training has been noted for other muscles, in particular, the known positive effect of physical activity on visual acuity (*Formenti et al., 2019; Tymchyk, 2019*).

Any physical exercise contributes to the overall strengthening of the body and activation of its function, including increasing the efficiency of the ciliary muscle and strengthening the sclera of the eye. Exercises also have a restorative effect that maintains a certain level of visual acuity, ie have a preventive effect on the visual organ.

Exercises used in case of lesions of eyes solve the following tasks:

- general strengthening of an organism;
- activation of the functions of the respiratory and cardiovascular systems;
- strengthening of the musculoskeletal system;
- improving blood circulation in the tissues of the eye;
- improving the activity of the eye muscles, especially the ciliary muscle;
- strengthening of the sclera;
- increasing the level of physical development and physical fitness;
- prevention and correction of posture changes;
- prevention of progression of myopia (*Milyukova & Yevdokimova, 2003; Kadochnikova & Khorkova, 2017*).

4. Complexes of exercises for schoolchildren to correct myopia

Among all the types of ocular pathology, exercise is used only for glaucoma and myopia. Special exercises are shown to all persons who have progressive acquired and uncomplicated retinal detachment of any degree of myopia. Age is not the limit, but the use of special exercises is mandatory. The earlier special exercises are prescribed for myopia and the lower the degree of myopia, the higher the effectiveness of the method (*Milyukova & Yevdokimova, 2003; Guidelines, 2014*). The prescribed exercises should be used systematically. This running, swimming, walking on skis of moderate intensity in combination with special accommodation training significantly increases the level of endurance and has a positive effect on the accommodation of the eyes (*He et al., 2015; Formenti et al., 2019*).

Within the daily use, general physical exercises are effective, which are used in combination with special exercises for the ciliary muscle, which improve accommodation and have a positive effect on the functions of the myopic eye (Rose et al., 2008; Wu et al., 2013; Ruban, 2016).

It is better to do special exercises for the eyes at the same time as general breathing exercises, corrective exercises, as well as exercises for the neck and back muscles. They are usually included in a set of exercises to improve the functionality of the cardiovascular and respiratory systems, as well as to strengthen the muscular corset, neck and back muscles, weakened by incorrect posture during visual work (sharply tilted head, stooped back). In a set of preventive measures outside the person during work is of great importance (Milyukova & Yevdokimova, 2003; Guidelines, 2014).

An additional set of exercises was used in an additional lesson (30 min) for boys and girls who had signs of myopia, for the prevention and correction of myopia are presented in table. Complex based on recommendation of (Milyukova & Yevdokimova, 2003; Guidelines, 2014; Kang et al., 2016; Chang et al., 2017; Kadochnikova & Khorkova, 2017; Colenbrander, 2018).

Table 1

A set of exercises to strengthen the ciliary muscle in boys and girls with signs of myopia

Exercises: Starting position	Procedure of movements	Repeat
1	2	3
Standing, legs apart, arms in front of chest with ball	Throwing the ball from the partner's chest (across the floor or air), standing 5-7 m (watch the ball with your eyes)	12-15
Standing, legs apart, hands behind his head with the ball	Throwing the ball to a partner standing 5-7 m (watch the ball with your eyes)	10-12
Standing, legs apart, one hand with the ball on his shoulder, the other holding the ball on top	Throwing the ball to a partner standing 5-7 m with one hand (watch the ball with your eyes). Alternate performance with left and right hands	7-10
Standing, legs apart, arms outstretched	The ball is thrown up and caught, watching its movement	7-10
Standing, legs apart, arms outstretched	The ball is forcibly thrown down and caught after the rebound, watching its movement	6-7
Standing, legs apart, arm with ball extended forward	The ball is thrown and caught with one hand (possibly two), watching it. Alternately right and left hands	6-8
Standing, legs apart, ball in one hand, distance from the wall 5-8 m	The ball is thrown into the wall and caught after the rebound, watching him with his eyes. Alternately right and left hands	6-8
Standing, legs apart, ball in one hand, distance from the wall 5-8 m	The ball is thrown across the floor to bounce off the wall, and caught after the bounce, watching it with the naked eye. Alternately right and left hands	6-8
Standing, legs apart, ball in one hand, distance from the target (basket) 5-8 m	The ball is thrown at the target, watching it with his eyes. Alternately right and left hands	6-8
Standing, the ball lies on the floor, the distance from the wall is 5-8 m	Alternate kicking of the ball to the wall with tracking of the movement of the ball and reflection in the wall after return	5 min

Table 1 (Continued)

1	2	3
Standing, the ball lies on the floor, the distance from the partner is 5-8 m	Alternate kicking of the ball to the partner with tracking the movement of the ball	5 min
Standing, cane in one hand	Lifting through the side of the cane with tracking its end with the eyes without turning the head and transferring to the other hand at the highest point, followed by lowering through the side and tracking its end with the eyes without turning the head	20
Standing, legs apart, hands in a circle, distance from the partner 5-8 m	Throwing the circle forward to the partner with giving him back rotation, watching the movement	10-12

If it is impossible to perform certain gymnastic tasks from the list in the table (for example, exercises with a ball at home), it can be increase the time / number of exercises to perform other actions from the list or use other exercises to avoid monotony (*Milyukova & Yevdokimova, 2003; Guidelines, 2014*).

5. Conclusions

It is known that children who do not systematically undergo a vision survey often do not receive the necessary timely solution to the problem. Two studies published by the American Academy of Ophthalmology found that 40 to 67% of children who do not undergo preventive vision testing do not receive the recommended follow-up care. One of the reasons for this in the United States is called poor communication between educational institutions and parents who do not receive information about the problem due to their absence during the examination of the child (*Guidelines, 2014; Colenbrander, 2018*). In Ukraine today, this problem is primarily in the practical absence of comprehensive medical examinations of students in educational institutions, which increases the scale of the problem (*Kostetska, 2012; Orlova & Kostetska, 2014*).

Studying puts a significant burden on the child's body and in case of non-compliance with hygienic requirements can provoke a number of "school diseases", one of which is a decrease in visual acuity (*French et al., 2013; Jonas et al., 2016; Heiting, 2019*).

Good vision is one of the most important functions of the human body, which allows a person to live fully, because it is vision that helps us get more than half of all information about the world around us. Therefore, the prevention of visual impairment should begin in childhood, which will maintain its severity for many years, and for this purpose can be used with great efficiency methods of therapeutic exercise (*Kostetska & Orlova, 2012*).

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TECHNOLOGY, CREATIVITY, IMPLEMENTATION**REAVILING THE DISTRIBUTION REGULARITIES
OF THE PROCEDURE EXECUTION TIME OF THE ALGORITHM
OF TOWER CONTROLLER'S ACTIONS USING GERT NETWORKS****Liudmyla Dzhuma**

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Summary

The article discusses issues related to the calculation of the parameters distribution of the procedure execution time of the algorithm of the Tower controller's actions when servicing the aircraft performing the approach (hereinafter simply the ALGORITHM), using the Graphical Evaluation and Review Technique (GERT network). ALGORITHM is an integral part of the trainee reference (or model-following) model in the intelligent training system "ATC of Tower", which is being developed by the Department of the Information Technologies of the Flight Academy of the National Aviation University. The reference model is formed on the basis of a list (set) of extremely detailed technological operations, the order of performing these operations upon a specific situation, a model of information flows circulation at the specialist's workplace, reference values, and time spent probabilistic models on performing technological operations. The reference model in the process of system functioning closely interacts with the trainee current model, thereby ensuring the fixation of his mistakes. On the basis of his mistakes, the intelligent system forms an individual training trajectory for the trainee and provides an opportunity for an objective automatic assessment of his operation activities. The use of the GERT network in calculating the ALGORITHM time distribution parameters allows obtaining the expected mean time value and the root-mean-square (standard) deviation, but in some cases, it does not allow calculating the execution time of its individual parts, for which the time is directly proportional to the performance characteristics of an aircraft.

Keywords: intelligent training system, trainee reference model, technological operations, approach, aircraft, transfer function, average expected time.

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1. Introduction

Today, the "degree of maturity" of the methods and means of information technology allows us to shift the emphasis on the independent work of the subject of training in almost any area, and the professional training of air traffic controllers is no exception.

The relevance of the direction is provided by the possibility of forming an individual trajectory of the trainee training based on the mistakes made by him at the previous stages, and the implementation of the objective control of knowledge.

At the Department of the Information Technologies of the Flight Academy of the National Aviation University, research is being carried out to improve the quality of the air traffic control by the operators of the navigation service systems and traffic control, and the work (*Piliponok, 2017*) presents the method of the same name, implemented in the intelligent training system "ATC of Tower". The specification of this system provides the modes of demonstration, training and control.

The reference model embedded in the system makes it possible to implement training and knowledge control modes. This model in the process of system functioning closely interacts with the trainee current model. On the basis of this information, the system forms an individual trajectory of the professional training for the trainee.

The reference model is based on:

1. The list of technological operations (TOs), the correctness of which must be controlled in terms of qualitative and quantitative indicators. An extended list of TOs was obtained at the stage of extracting knowledge about the subject area using the combined method of timing (*Dzhuma, et al, 2015*).

2. The procedure of performing TOs, depending on the situation, which is determined by the air and ground traffic situation, aircraft performance characteristics, weather conditions, etc.

3. A model of information flow circulation, developed on the basis of an analysis of the workplace of an air traffic controller of the airport traffic control tower (henceforth Tower controller), for which information circulation patterns have been identified (*Dzhuma, et al, 2016*).

4. The reference values of the time that is spent on performing each of the TOs. The basis for these values are the regularities we discovered among the temporal indicators of technological operations of the Tower controller's activity, which provide the possibility of an objective automatic assessment of the operator's activity of the subject of training.

Determination of the order of performing TOs (ALGORITHM), as well as obtaining the parameters of the execution time distribution of its procedures, are integral parts of the problem being solved. The procedure of performing TOs can be obtained as a result of the analysis of the Tower controller's professional activity, the patterns identified in it, as well as on the basis of the developed model of information flows circulation at the Tower controller's work place.

Obtaining the parameters of the distribution of the execution time of the ALGORITHM procedures becomes possible through the use of GERT network, which allows one to describe complex systems consisting of the independently operating and interacting subsystems, and describe not only the averaged values of the system parameters, but provide complete information, which is the distribution function of these parameters as random variables.

2. Construction of an algorithm for the Tower controller's actions when a landing aircraft performing approach

As noted earlier, the work of an air traffic controller officer (ATCO) should be regarded as an operator's activity. The basis of this judgment is the analysis of the tasks of control, management, transmission or transformation of information solved by a specialist, interaction with technical devices and the external environment using a variety of special means of displaying information and controls (*Strelkov, 2001*).

The logical organization of the human operator's activity, consisting of a set of actions and operational units of information, is usually called the algorithm of the human operator's activity (*Dushkov, et al, 2005*). A distinction should be made between prescribed and implemented algorithms. When designing a human-machine system, one should strive for bringing the prescribed and implemented algorithms as close as possible. Difficulties in achieving complete identity of both types of algorithms are due, firstly, to insufficient knowledge of the internal organization of the operator's actions, which complicates their identification, and secondly, to the fact that a person, within certain limits, can change the way of achieving the goal, depending on various conditions. In this case G.V. Sukhodolsky (*Sukhodolskij, 1994*), proposes to distinguish between reliable (hard) and probabilistic (stochastic, flexible) algorithms.

In the first case, we are talking about an unambiguous sequence in which actions follow each other with a probability equal to 1 (one). In the second case, an ambiguous sequence is assumed in which the transition from action to action is carried out with a probability $0 < p < 1$ (*Dushkov, et al, 2005*).

To represent the Tower controller activities, which services aircraft arriving at the aerodrome area in order to land, on the basis of the results of the study, an algorithm of his actions was formed. We have chosen a graphical way of the algorithm representing as the most visual. In a graphical representation, the algorithm is depicted as a sequence of interconnected functional blocks (in our case, technological operations), each of which corresponds to the execution of one or more actions. The algorithm also indicates the probabilities of transition from one functional block to another or their repeated execution if the probability of triggering is not equal to 1.

This algorithm is conventionally divided into the following procedures:

1. Procedure "1-1" – transmission by the Briefing Office dispatcher of the information about the aircraft departure from another aerodrome. The transmitted information includes flight numbers (aircraft call sign) and universal time coordinated of departure from another aerodrome.

2. Procedure "2-2" – the Approach controller sends information about the incoming aircraft. At this stage, information about the intended type of approach and additional information, if any, is transmitted.

3. Procedure "3-3" – the final stage of the aircraft approach. The duration of this stage depends directly on the aircraft performance characteristics: the flight speed at the descent stage, or, in other words, the time the aircraft remains on the final approach track from the moment of first communication contact with Tower controller until the moment of braking after landing. At this stage, the controller makes a decision on issuing a landing clearance in accordance with the air situation at the aerodrome (available aircraft for departure, work on the runway) and its area (aircraft making go-around procedure).

4. Procedure "4-4" – vacating the runway after landing and taxiing the aircraft to its parking position. The procedure when the controller issues instructions for the aircraft to vacate the runway, as well as instructions for taxiing to the parking area.

5. Procedure "5-5" – transmission of information to the Briefing Office dispatcher about the actual time (UTC) of aircraft landing. A feature of this procedure is that a possible start of its execution is the beginning of the previous procedure "4-4", in other words, these procedures can be performed in parallel. The end of the procedure is limited up to a regulated time after landing, during which a landing telegram must be sent to the authorities concerned. According to the Ukrainian legislation and European standards, this time should not exceed 5 minutes after aircraft landing at the destination airport.

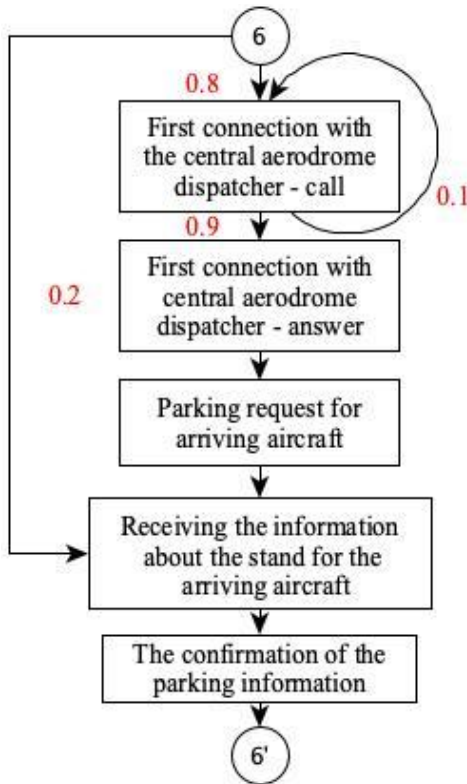


Fig. 1. Algorithm for performing the procedure "6-6"

5. Procedure "6-6" – request/receipt of information from the central airdrome dispatcher about the parking stand for the arriving aircraft. Depending on the air traffic management automated system used at a specific workplace or air traffic service unit, information about aircraft parking stand is transmitted either by communication channels and this algorithm is performed, or by displaying the parking number in the aircraft formular.

The procedure begins from the moment of getting the information about the aircraft departure from another aerodrome and ends at the stage of issuing taxi- instructions. In other words, this procedure is a parallel process for procedures "2-2", "3-3" and part of the procedure "4-4". The algorithm for this procedure is shown in Figure 1.

The general algorithm will be considered as procedural component of the trainee reference model, which will allow us to evaluate the skills and actions of the operator in terms of qualitative parameters. Also, on the basis of the obtained general algorithm, further work on the creation of a mistakes model is possible in accordance with the structure of the trainee model described in this work (Klyukin, 2012). The mistakes of the trainee are analysed within this model, ensuring the automation of assessment, and as a result, alternative

trajectories of training the trainee current model are determined, which makes it possible to introduce an adaptive component into the intelligent learning system.

3. Calculation of the distribution parameters of the execution time for the algorithm procedures using GERT networks

When designing systems, it is important to know not just the average values of the system parameters, but to have more complete information, which is the distribution function of these parameters as random variables.

Methods such as Markov random field make it possible to easily estimate the mathematical mean value and dispersion of the number of times a process is in the states of a non-returnable set, but the distribution functions of these quantities are quite difficult to calculate, and in Petri nets, to obtain numerical results, simulation modeling is required, which allows by repeated repetition of numerical experiments evaluate all necessary statistics, including distribution functions, mathematical mean value and dispersion (Dorrer, 2016).

GERT networks are referred to as network models (N-schemes). They allow us to describe complex systems consisting of independently working and interacting subsystems.

Some sources (Dorrer, 2016) say that the formalisms of GERT networks resemble the description of Colored Petri nets, while other sources (Zyryanov, et al, 2012) say that these

networks are a variant of semi-Markov random field (models), but the random variables in them are characterized not only by dispersion, but also by the distribution law.

The structure of the GERT network can be described in the form of a graph

$$G = (N, A),$$

where N is the set of network nodes, $N = \{n_1, \dots, n_n\}$, n is the number of nodes; A is the set of oriented arcs, $A = \{a_{ij}, i, j \in (1, \dots, n)\}$. The arc a_{ij} connects two nodes (n_i and n_j) and is directed from n_i to n_j sources (Zyryanov, et al, 2012).

A directed edge (arc) is associated with which node i leaves and which node j enters, and is denoted as an arc $\langle i, j \rangle$. The arc $\langle i, j \rangle$ in the framework of GERT networks is considered as "work on the arc" and has the weight of some additive parameter (for example, the work execution time). For a GERT network, the weight of the arc $\langle i, j \rangle$ is the vector $[p_{ij}, F_{ij}]$, where p_{ij} is the conditional probability of the execution of the arc i, j under the condition of activation of the node i and F_{ij} is the conditional distribution function of the execution time of the arc i, j , under the condition that $\langle i, j \rangle$ is satisfied. In this case, the arc $\langle i, j \rangle$, for which $F_{ij} = 0$, is called an "idle" arc or an arc on which no work is performed.

The nodes of the GERT network are interpreted as states of the system, and arcs as transitions from one state to another. Such transitions are associated with the execution of generalized operations characterized by the distribution density and the probability of execution (Dorrer, 2016; Filips, et al, 1984; Zyryanov, et al, 2012).

Each node on the network has an input and output activation function. The input function defines the condition under which the node can be activated. The output function defines a set of conditions associated with the result of activating a node.

Types of input functions:

- AND-function – a node is activated if all arcs inputted in it are executed;
- IOR-function – the node is activated if any arc or several arcs inputted in it are executed;
- EOR-function – a node is activated if any arc inputted in it is executed, provided that at a given time only one arc inputted in this node can be executed.

Types of output functions (Fig. 2): deterministic function (DT) – all arcs leaving the node are executed if the node is activated; stochastic function (ST) – only one arc outgoing from a node is executed with a given probability if the node is activated.



Fig. 2. Input and output functions of GERT network nodes

By combining all the input and output functions, we get six different types of nodes (Fig. 3):

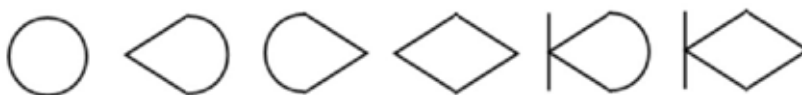


Fig. 3. Types of nodes in the GERT network

A node with an input AND function and a stochastic output function is called a STEOR node. Activation of a node means that the system has passed into a certain state and determines a lot of further work (operations). One or several works (operations) begin their execution immediately after the activation of the node that is their beginning. A node is activated if its input function is executed. After executing the output function of the activated node, it becomes inactive.

The results of the functioning of the graph G can be presented in the form of a set of parameters of the network being executed: the probability of the network runoff activation, the runoff distribution function, etc.

Thus, a GERT network is a network in which each node belongs to one of six types of nodes, for each arc $\langle i, j \rangle$, where a weight of the form $[p_{ij}, F_{ij}]$ with the above value is defined and the initial distribution of network sources is given (Pritsker, 1996a; Pritsker, 1996b). The initial task for calculating the parameters of the mean time, (root-mean-square) standard deviation from the mean and the probability of an event is to represent the process in the form of a GERT network. Figure 4 shows the procedure "1-1" for transmitting information about a departing aircraft from another aerodrome from the Briefing Office dispatcher in the form of an algorithm (a) and a GERT network (b), taking into account stochastic and deterministic outcomes of individual technological operations.

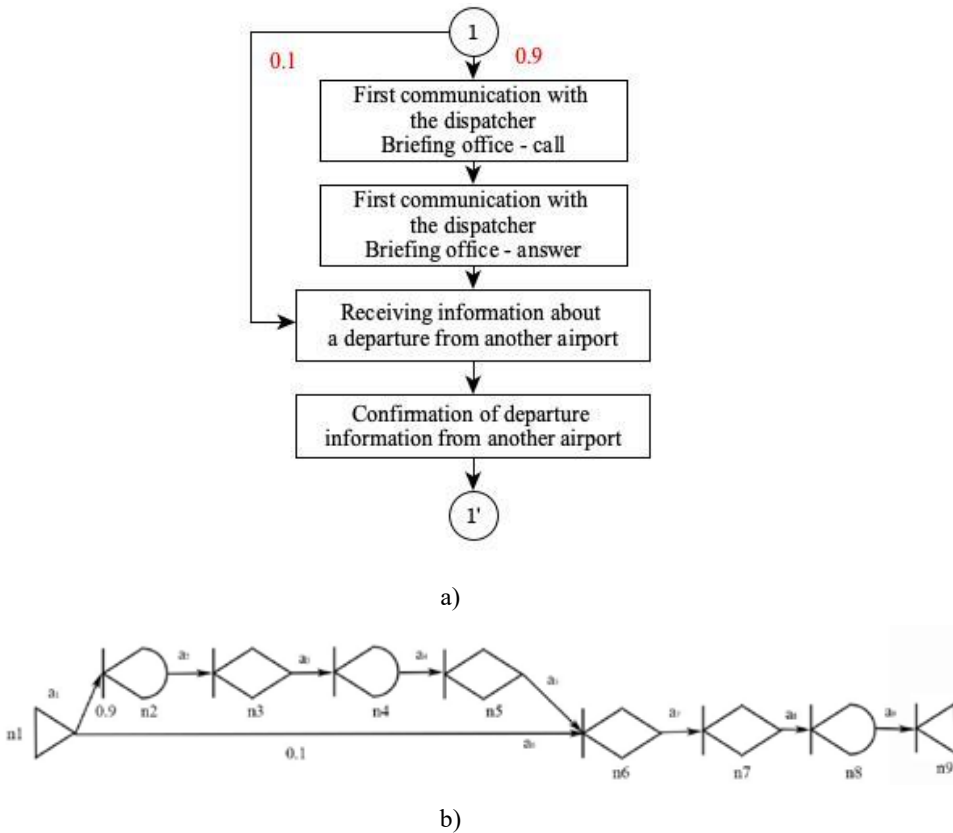


Fig. 4. Model of the transmitting information process about the departing aircraft from the Briefing Office dispatcher a) in the form of an algorithm b) in the form of a GERT network

The process model in the form of a GERT network (Fig. 4b) includes 9 nodes $N = \{n_1, \dots, n_9\}$ and a set A containing seven arcs on which the following operations are performed:

- a_1 – initial state;
- a_2 – first communication with the Briefing office dispatcher – call;
- a_3 – time of delay in response with the Briefing Office dispatcher;
- a_4 – first communication with the Briefing office dispatcher – answer;
- a_5 – time of delay in response with the Briefing Office dispatcher;
- a_6 – initial state;
- a_7 – receiving information about a departure from another aerodrome;
- a_8 – time of delay in response with the Briefing Office dispatcher;
- a_9 – confirmation of information about a departure from another aerodrome.

Each arc $a \in A$ of the GERT network is characterized by the probability of execution of this arc p_a , as well as the distribution of the probabilities of the parameter value transmitted over the network.

Figure 4 shows the probabilities of triggering transitions that are not equal to 1, that is, this is an arc a_1 with a probability of 0.9 and a_6 with a probability of 0.1. Let y be a random variable characterizing the process on the arc a (in our case, it describes the execution time of the operation) with the conditional distribution density $f_a(y)$.

Thus, the full characteristic of the arc a is the vector $[p_a, f_a(y)]$. Along with the distributions $f(y)$, we will consider the functions $M_y(s)$ generated by them, which are called generating functions and are calculated as (Pritsker, 1996a; Pritsker, 1996b):

For a random variable with continuous distribution $f(y)$

$$M_y(s) = \int e^{ys} f(y) dy, \quad (1)$$

where s is a mean parameter, and the integral is taken over the entire domain of definition of the random variable y .

For a random variable with discrete distribution $f(y)$

$$M_y(s) = \sum e^{ys} f(y), \quad (2)$$

where summation is performed over all values of y . It is assumed that the integral in formula (1) and the sum in expression (2) are finite.

The use of generating functions makes it possible to evaluate the probabilistic characteristics of complex systems described by GERT networks in a simpler manner than when working directly with distributions of random variables. In this case, an important property of the generating function of a random variable is the ability to calculate the initial moments of the distribution $f(y)$. It is known that the k -th initial moment of a random variable y with a continuous distribution density function $f(y)$ is the integral

$$v_k = \int y^k f(y) dy, k = 0, 1. \quad (3)$$

In particular, $v_0 = 1, v_1 = m(y)$ is the mathematical mean value of a random variable y ; the second moment v_2 allows us to determine the dispersion of the random variable: $\sigma^2(y) = v_2 - m^2(y)$.

The use of generating functions makes it possible to represent the characteristic of the arc $a \in A$ in the form of a vector $[p_a, M_a(s)]$, and the product of these components

$$W_a(s) = p_a M_a(s) \quad (4)$$

is called the *transfer function* of the arc $a \in A$ or its *W-function* (Pritsker, 1996a; Pritsker, 1996b).

The meaning of the transfer function is as follows. If the signal y acts at the input node n_i of some arc a_{ij} , then the signal $x = W_{ij}(s)y$ will arrive at the output node of this arc n_j . Also, the use of *W-functions* allows you to calculate the probabilistic characteristics of a system containing many arcs.

In figure 4b, two series-connected arcs a_7 and a_8 are shown, on which independent random variables y_7 and y_8 are given with their own distributions $f_7(y_7)$ and $f_8(y_8)$.

As a result of executing these arcs, we get a random variable $z = y_7 + y_8$ with a distribution function equal to the product of functions: $f(z) = f_7(y_7)f_8(y_8)$. Then, in accordance with formula (3), we obtain an expression for the generating function of the quantity z :

$$M_z(s) = M_{y_6+y_7} = \iint e^{s(y_6+y_7)} f_6(y_6) f_7(y_7) dy_6 dy_7 = \int e^{sy_6} f_6(y_6) dy_6 \int e^{sy_7} f_7(y_7) dy_7 = M_6(s) M_7$$

Let us now turn to the *W-functions*. For each arc, the functions $W_7 = p_7 M_7(s)$, $W_8 = p_8 M_8(s)$ are known. The probabilities of completing arcs p_1 and p_2 are independent, therefore, the probabilities of completing both arcs is equal to their product: $z = p_7 p_8$. Thus, we obtain those arcs a_7 and a_8 are equivalent to one arc a_{78} (Fig. 5) with the transfer function

$$W_{78} = p_{78} M_{78}(s) = p_7 p_8 M_7(s) M_8(s) = W_7(s) \cdot W_8(s) \tag{5}$$

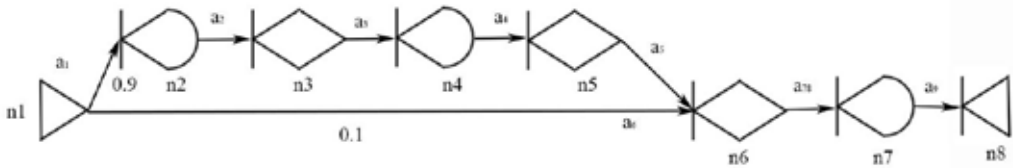


Fig. 5. Model of the transmitting information process about a departed aircraft from the Briefing Office dispatcher with an equivalent one arc a_{78}

Considering the section of the GERT network from arc a_1 to arc a_5 , two operations have a deterministic value (the operation time is 1 second), and three operations are given by independent random variables, with the following distributions:

- a_1 is normal distribution law;
- a_3 and a_5 are described by the chi-square distribution.

Therefore, the expression for the generating function of the quantity can be considered as the sum of independent random and deterministic quantities $z = y_1 + y_3 + y_5$ with the distribution function equal to the product of functions: $f(z) = f_1(y_1)f_3(y_3)f_5(y_5)$ and deterministic quantities.

$$\begin{aligned} M_{z_1}(s) &= M_{y_1+y_3+y_5} = \iint \int e^{s(y_1+y_3+y_5)} f_1(y_1) f_3(y_3) f_5(y_5) + y_2 + y_4 = \\ &= \int e^{sy_1} f_1(y_1) dy_1 \int e^{sy_3} f_3(y_3) dy_3 \int e^{sy_5} f_5(y_5) dy_5 + y_2 + y_4 = \\ &= M_1(s) M_3(s) M_5(s) + y_2 + y_4 \end{aligned}$$

The probability of fulfillment for all arcs of the network section from a_1 to a_5 is equal to 1, therefore, the probability of fulfillment of the section of arcs is equal to their product:

$p_{z_1} = 1$. Thus, we obtain those arcs a_1, a_2, a_3, a_4, a_5 are equivalent to one arc a_{15} (Fig. 6) with a transfer function

$$M_{15} = p_{15}M_{15}(s) = p_{15}M_1(s)M_2(s)M_3(s)M_4(s)M_5(s) = W_1(s) \cdot W_2(s) \cdot W_3(s) \cdot W_4(s) \cdot W_5(s). \tag{6}$$

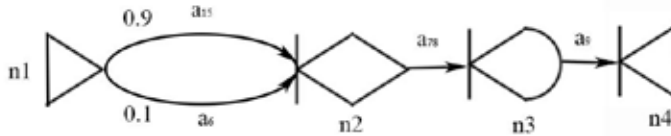


Fig. 6. Model of the transmitting information process about the departed aircraft from the Briefing Office dispatcher with equivalent arcs a_{15} and a_{78}

The resulting network has two parallel branches a_{15} and a_6 , each of which is determined by its own W -function $W_{15} = p_{15}M_{15}(s)$ and $W_6 = p_6M_6(s)$, and the output side of node n_1 is stochastic. This means that only one outgoing arc can be executed at a time, so the final W -function is the sum of the W -functions of the individual branches:

$$W_{12} = p_{12}M_{12}(s) = p_{15}M_{15}(s) + p_6M_6(s) = W_{15}(s) + W_6(s). \tag{7}$$

This result is generalized to any number of parallel arcs, provided that all of them are EXCLUSIVE-OR.

The characteristics of the processes performed on arcs (in seconds) are given in table 1.

Table 1

Characteristics of processes performed on arcs

Arc name	Probability of execution	Distribution type	Distribution parameters	Generating function $M_{ij}(s)$
a_1	0.9	Exponential	$a = 1.5$	$(1 - s / a)^{-1}$
a_2	1	Constant	$a = 1$	$\exp(s)$
a_3	1	Chi square	$k=1$	$(1-2s)^{-k/2}$
a_4	1	Constant	$a = 1$	$\exp(s)$
a_5	1	Chi square	$k=1$	$(1-2s)^{-k/2}$
a_6	0.1	Exponential	$a = 1.5$	$(1 - s / a)^{-1}$
a_7	1	Uniform	$[1 \dots 6]$	$(\exp(s) - \exp(1s)) / 5s$
a_8	1	Chi square	$k=1$	$(1-2s)^{-k/2}$
a_9	1	Constant	$a = 1$	$\exp(s)$

Let us write out expressions for transfer functions $W_{ij}(s) = p_{ij}M_{ij}(s)$:

$$W_1(s) = 0.9(1 - s / 1.5)^{-1},$$

$$W_2(s) = \exp(s),$$

$$W_3(s) = (1 - 2s)^{-1/2},$$

$$W_4(s) = \exp(s),$$

$$\begin{aligned}
 W_5 &= (1 - 2s)^{-1/2}, \\
 W_6(s) &= 0.1(1 - s / 1.5)^{-1/2} \\
 W_7(s) &= (\exp(s) - (1s)) / 5s, \\
 W_8 &= (1 - 2s)^{-1/2} \\
 W_9(s) &= \exp(s).
 \end{aligned}$$

We use formulas (5) and (6) to obtain the transfer function of the GERT network (shown in Figure 6) from node n_1 to node n_4 along arc a_{15} :

$$W_{19} = W_{15}(s) \cdot W_{78}(s) \cdot W_9(s).$$

Substituting the expressions for the transfer functions of all arcs into the formula and doing some transformations, we get

$$W_{19} = 0.9 \left(1 - \frac{s}{1.5}\right)^{-1} (2 \exp(s)) \left(2(1 - 2s)^{-\frac{1}{2}}\right) \frac{\exp(s) - \exp(1s)}{5s(1 - 2s)^{\frac{1}{2}} \exp(s)}.$$

In order to determine the generating function of the considered system, we use the formula

$$M(s) = \frac{W(s)_{19}}{W(0)_{19}},$$

which follows from the relations $W_{19}(s) = p_{19} M_{19}(s)$, $W_{19}(0) = p_{19}$, because $M_{19}(0) = 1$.

Let us now proceed to calculating the moments of distributions at the output of the system, along the arc a_1 . Calculating the derivative $dM_{19}(s) / ds$ at $s = 0$, we obtain an estimate of the first moment – the mathematical mean value:

$$v_1(y_9) = m(y_9) = \left. \frac{dM_{19}(s)}{ds} \right|_{s=0} = 8,34 \text{ sec}.$$

Further, finding the second derivative $d^2 M_{19}(s) / ds^2$ at $s = 0$, we obtain the second moment of the distribution of the function y_9 :

$$v_2(y_9) = m(y_9) = \left. \frac{d^2 M_{19}(s)}{ds^2} \right|_{s=0} = 77,106 \text{ sec}^2.$$

Whence it follows that

$$\begin{aligned}
 \sigma^2(y_9) &= v_2(y_9) - m^2(y_9) = 77,106 - 8,34^2 = 7,546 \text{ sec}^2, \\
 \sigma(y_9) &= 2,747 \text{ sec}.
 \end{aligned}$$

Thus, in this system, the average expected time for transmitting information about an aircraft departure from another aerodrome from the Briefing Office dispatcher with the initial communication is 8.34 sec., and the root-mean-square (standard deviation) from the average is 2.747 sec.

Consider now a chain of nodes from n_1 to n_4 . This chain differs from the previously considered only in the first link – a_6 instead of a_{15} . Making calculations similar to those given above, we get

$$W_{69}(s) = W_6(s) \cdot W_{78}(s) \cdot W_9(s) = \frac{0.1 \left(1 - \frac{s}{1.5}\right)^{-\frac{1}{2}} (\exp(s) - \exp(1s))}{5s(1-2s)^{-\frac{1}{2}} \exp(s)},$$

whence

$$M(s) = \frac{W(s)_{69}}{W(0)_{69}},$$

Having calculated the first and second moments of the random variable y_9 , of the section of the chain a_{69} , we obtain

$$v_1(y_9) = m(y_9) = \left. \frac{dM_{69}(s)}{ds} \right|_{s=0} = 6,03 \text{ sec.}$$

$$v_2(y_9) = m(y_9) = \left. \frac{d^2 M_{69}(s)}{ds^2} \right|_{s=0} = 26,06 \text{ sec}^2.$$

$$\sigma^2(y_9) = v_2(y_9) - m^2(y_9) = 26,06 - 5,03^2 = 0,7569 \text{ sec}^2,$$

$$\sigma(y_9) = 0,87 \text{ sec.}$$

So, the average time of transmission of information about an aircraft departure from another aerodrome from the Briefing Office dispatcher without initial communication is 5.03 sec., and the root-mean-square (standard deviation) from the average is 0.87 sec.

The capabilities of GERT networks make it possible to carry out similar calculations for the “2-2” procedure – transmission by the Approach controller of information about the incoming aircraft. A graphical representation of the GERT network of this process is shown in Figure 7.

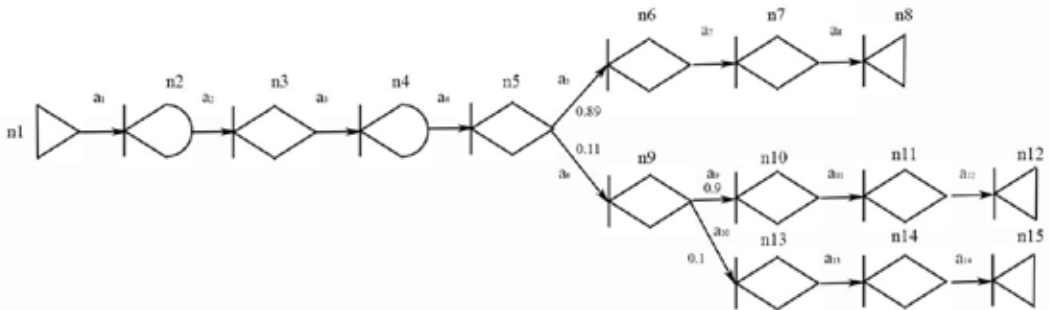


Fig. 7. Process model transmission by the Approach controller of information about the incoming aircraft in the GERT network form

The model for this process in the GERT network form (Fig. 7) contains 15 nodes, that is, $N = \{n_1, \dots, n_{15}\}$ and a set A containing fourteen arcs on which the following operations are performed:

- a_1 – first communication with the Approach controller – call;
- a_2 – time of delay in response with the Approach controller;
- a_3 – first communication with the Approach controller – answer;
- a_4 – time of delay in response with the Approach controller;

- a_5 – obtaining information about the approaching aircraft (using the instrumental approach system (ILS) with the probability $p = 0.89$);
- a_6 – selection of an alternative approach method (probability of actuation $p = 0.11$);
- a_7 – time of delay in response with the Approach controller;
- a_8 – confirmation of information about the incoming aircraft;
- a_9 – obtaining information about the approaching aircraft (using a visual approach with a probability $p = 0.9$);
- a_{10} – obtaining information about the incoming aircraft (using the method of NDB (non-directional beacon) approach with the probability $p = 0.1$);
- a_{11} – time of delay in response with the Approach controller;
- a_{12} – confirmation of information about the incoming aircraft;
- a_{13} – time of delay in response with the Approach controller;
- a_{14} – confirmation of information about the incoming aircraft.

Since the time characteristics for all types of approach, as well as the response delay time with the Approach controller correspond to the same distribution laws and have the same parameters, the average expected time – for the Approach controller to transmit information about the approaching aircraft will be the same and will be 8.729 sec., And the root-mean-square (standard deviation) deviation from the mean will be 2.817 sec.

The probability of each outcome of an approach method selection. For the ILS system is $0.80/(0.85 + 0.05) = 0.89$, for a visual approach – $0.09/(0.85 + 0.05) = 0.1$, and for a NDB approach the probability of an outcome is $0.009/(0.85 + 0.05) = 0.01$.

For procedure "5-5" – transmission of information to the Briefing Office dispatcher about the actual landing time of the aircraft and procedure "6-6" –request/receipt of information from the central airdrome dispatcher about the parking stand for the arriving aircraft, a characteristic feature is the presence of a cyclic operation of the transition. The triggering of this cyclic transition is due to the possible Tower controller workload in performing other operations, as well as a technical factor (problems with communication of a loudspeaker device). Graphical models of GERT networks of these stages are presented in Figures 8 and 9. The cyclic transition, or the so-called loop, of the first model is designated by arc a_5 , where the signal from the output of node n_3 is fed to the input of the previous node n_2 , for the second model, the loop is formed by transition a_3 , connecting nodes n_3 and n_2 .

Let's consider an anti-parallel connection, taking as an example a section of the GERT network corresponding to the procedure "5-5" (Fig. 10). Signal y arrives at the input of node n_3 it is added to the feedback signal v , and the sum of these signals u passes through arc a_3 , as a result of which the output signal x is formed at the output of node n_3 . But this signal along the arc a_5 with the transfer function $W_5(s)$ returns to the input of node n_2 , turning into v .

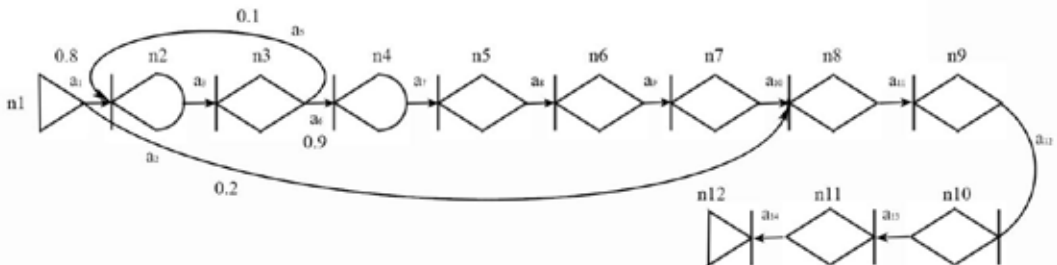


Fig. 8. Model of the process of transmitting information to the Briefing Office dispatcher about the actual landing time of the aircraft in the GERT network form

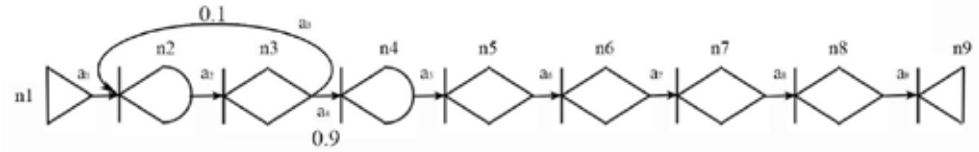


Fig. 9. A model of the process of requesting/receiving information from the central airdrome dispatcher about parking stand for an arriving aircraft in the GERT network form

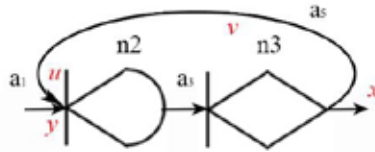


Fig. 10. Anti-parallel connection of arcs of the GERT network

Taking into account the property of the transfer functions, we obtain the following relations between the signals:

$$u = y + v, \quad v = W_5(s)x, \quad x = W_3(s)u,$$

whence, excluding the variables u and v , we have

$$x = \frac{W_3(s)}{1 - W_3(s)W_5(s)},$$

i.e. the transfer function for this anti-parallel connection is

$$W_{b.c} = \frac{x}{y} = \frac{W_3(s)}{1 - W_3(s)W_5(s)}. \tag{8}$$

Thus, when calculating the time distribution parameters when using the transfer function for loop (8), the average expected time for the process of transmitting information to the Briefing Office dispatcher about the actual aircraft landing time is 7.848 sec., the root-mean-square (standard deviation) from the average will be 3.066 sec. For the process of requesting/receiving information from the central airdrome dispatcher about the parking stand for the arriving aircraft, the average expected time is 9.04 sec., the standard (root-mean-square) deviation from the average will be 4.87 sec.

Since in some cases the disadvantage of GERT networks is the complexity of analytical calculations to determine the moments of the distribution function of the output quantity and the presence of subsystem blocks in the procedures "3-3" and "4-4" (the final stage of the aircraft approach and vacating of the runway after landing and taxiing of the aircraft to its parking stand respectively) the execution time of which is directly proportional to the flight performance specific aircraft, the calculation of distribution parameters becomes possible only with simulation.

4. Conclusions

The result of the scientific work is the algorithm of the Tower controller's action when servicing the aircraft performing the approach with the calculated distribution parameters of

the procedure execution time. ALGORITHM is conventionally divided into six procedures to simplify work with it. The resulting ALGORITHM is a procedural component of the trainee reference model, designed to assess the skills and actions of the student in terms of qualitative parameters.

Also, this ALGORITHM allows us to develop a mistakes model, and as a result, to implement alternative training trajectories for the trainee current model in the context of creating an adaptive component of the intellectual training system.

GERT networks, thanks to their specifications, allow describing complex systems consisting of independently operating and interacting subsystems, as well as calculating the distribution parameters of the execution time of procedures.

On the basis of the developed models of GERT networks for the ALGORITHM procedures, the values of the average expected execution time for each specific procedure and the root-mean-square deviation (standard deviation) from the mean, necessary for further work with the simulation model, were obtained.

It was also revealed that the determination of the distribution parameters of the procedures execution time using GERT networks in the presence of blocks with computational-dependent components in the ALGORITHM (a block with the calculation of aircraft performance parameters), which also cannot be described by deterministic indicators or probability distributions, is not advisable. For this type of procedure, simulation is the most appropriate method for identifying parameters.

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MATHEMATICAL MODELING OF FINDING EFFECTIVE ALGORITHMS OF TRANSPORT COMPANY FUNCTIONING

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Summary

This article is devoted to the study of certain stages of transport enterprises operation processes. The subject of consideration is the technological processes of production of a certain type of products at a single transport enterprise during the technological process in the mechanical assembly shop. To fully represent and consideration of all factors of influence, the enterprise was considered as a human-machine system and further, during the research, an analysis of the structure of the system and the principles of its operation was carried out. This article provides a model of a certain technological process, which, despite its simplicity, is so meaningful that it encompasses a wide range of practical optimization tasks.

Keywords: technological processes, system structure, mathematical model, transport company, algorithmization, operating schedule.

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1. Introduction

When considering practical tasks or studying processes, systems with different service routes for requirements are most widespread. As noted by V. Dudek, M. Smith and S. Panwalkar, in 60 % of the surveyed industrial companies, demand maintenance routes were different (Dudek R.A., Smith M.L., Panwalkar S.S., 1974).

V. G. Timkovsky, N. Hifitz and I. Adiri proposed polynomial algorithms for constructing an optimal service schedule with two devices n simultaneously incoming requirements with single duration of operations (Timkovsky, V.G., Hifitz N. and Adiri I., 1982). The labor intensity of these algorithms is $O(R)$, where R is the total number of operations performed.

A fairly complete account of the theory of duality in relation to the problems of constructing optimal schedules is contained in the monograph by V.S. Mikhalevich and A.I. Kuksa (Mikhalevich V.S., Kuksa A.I., 1983). J. Peter van Dam, Gerard J. C. Gaalman noted, investigated and justified the planning and execution of technological processes in enterprises, based on schedule theory, which relates to the study of operations. In the work, it was noted that these planning and management tasks are combinatorily complex due to many factors: performing technological operations on the equipment of in-line workshops with limitations in the time of intermediate storage, the presence of manual operations, and

common resources for all technological processes. The planning algorithm that is developed is based on the characteristics of multilevel scheduling taking into account the hierarchy of levels (*J. Peter van Dam, Gerard J. C. Gaalman, 1994*). The best known methods of sequential analysis of variants was developed by M.L. Fisher, B.J. Lageweg, J.K. Lenstra – this is a method of branches and bounds (*Fisher M.L., Lageweg B.J., Lenstra J.K., 1983*).

2. Purpose and methods of research

The article focuses on the mathematical setting of the problem and the construction of a mathematical model of a technological process at the vehicle transport enterprise. In order to find the optimal structure and select the most effective options for performing technological processes and managing them, break the system into subsystems and processes.

When examining the production technologies of a particular system, we consider the issues of ordering the service of successive technological processes according to the criterion of minimizing the time spent in the system, as well as the order of service associated with the execution of processes with restrictions in the form of policy or deadlines.

3. Mathematical model and problem setting

The mathematical model of the technological problem is compiled in order to find at the given properties of tasks and resources and the restrictions imposed on them an effective algorithm for ordering tasks that optimizes or seeks to optimize the desired efficiency measure. The measure of efficiency in this task will be understood as the length of the schedule and the average time of the tasks in the system (the meaning of these concepts will be explained below).

To build a model, let's take a look at the main steps in implementing the process, which is provided by a set of processors $P = \{P_1, P_2, \dots, P_m\}$, which differ in our case in terms of capabilities, performance and functional operations. A common job system $T = \{T_1, T_2, \dots, T_n\}$ for a given set of processors is a set of jobs to be executed, on which a partial order relationship can be determined: the $T_i < T_j$ entry means that the T_i job must be completed earlier in time than the T_j job starts.

To fully describe the jobs maintenance process, we will introduce the concept of a system functioning schedule, a set of instructions for determining which jobs are serviced, serviced or will be serviced at each point in time.

From the theory of schedules, the following types of schedules are known:

1. No-interrupt schedules that assume that every job that starts cannot be interrupted, that is, the job must always be completed.

2. Interrupt schedules allow jobs to be aborted and delayed by the processor, and it is assumed that the total time required to complete the job remains unchanged and there is no loss of service time during interrupts.

3. Schedules using the list assume that an ordered list of jobs from the set of T , the so-called priority list, is first prepared, when the processor is released, the list is viewed first until there is the first failed job that is ready to run. A job is considered ready to run on a given processor if all preceding jobs have completed and the available resources are sufficient to run.

A valid schedule is a schedule that satisfies all the limitations arising from setting a specific task under consideration.

To take advantage of the schedule efficiency measure, introduce the concept of schedule length.

The length of the schedule for the set (1) will be the time required to complete the entire set of jobs

$$T = \{T_1, T_2, \dots, T_n\}, T_i < T_j, i < j; i = \overline{1, n}; j = \overline{1, n} \tag{1}$$

The length of the schedule depends on the total execution time of all jobs and the total idle time of the processors. The lowest-length schedule corresponds to a situation where there are no processors downtimes.

In the future, it is also necessary to use the concept of work R_j , which is an ordered sequence of jobs $T_j, j = \overline{1, k}$ and belongs to the set (2):

$$W = \{R_1, R_2, \dots, R_j, \dots, R_k\} \tag{2}$$

The schedule can be considered as a set $S = \{S_1(t), S_2(t), \dots, S_l(t), \dots, S_m(t)\}$ of piece-meal-constant continuous functions on the left $S_l(t), l = \overline{1, m}$, each of which takes values $0, 1, 2, \dots, n$.

Consider, that $S_l(t') = i \neq 0$, if at time $t = t'$ the processor P_l serves the job T_i ; and $S_l(t') = 0$, if at time $t = t'$ the processor P_l is idle.

The processor system serving the job data – the serving system – is called one-step if each job can be fully serviced by one of the processors. The service times t_{il} of each job $T_i, i = \overline{1, n}$ by each processor $P_l, l = \overline{1, m}$ are assumed to be set.

The service system is called multistage if the maintenance process of the T_i job includes r_i consecutive stages, with each stage corresponding to a set of M_{r_i} , whose members are processors from the set $P = \{P_1, P_2, \dots, P_m\}$.

If $|M_{r_i}| = 1$, the service system is called a serial processor system. In this case, for each T_i job, the path of the processors $L^i = \{P_1, P_2, \dots, P_{r_i}\}$ is set. Among systems with serial processors, stream-type systems are distinguished. In these systems, each job must be serviced sequentially by each processor, the processor paths are the same for all jobs. In systems with non-fixed routes, the order of processor passage is not predetermined, each jobs "selects" it at its own discretion.

In any case, if the job T_i in the stage r_i is served by the processor $P_l, l = \overline{1, m}$, then the predetermined duration of its service time t_{il} is assumed.

Elements of multiple processors of one stage are called parallel. Concurrently, the non-interruptive job maintenance process on a parallel processor system satisfies the following condition:

– each job is serviced by only one processor. If the maintenance of the T_i job by the processor P_l starts at time t_i^0 it proceeds continuously and ends at time $t_i = t_i^0 + t_{il}$.

4. Research of the functioning processes

We set the task of describing the technological process of manufacturing a certain assembly of parts included in the production scheme of vehicle transport enterprise. When considering routings, we will limit ourselves to three types of parts, which are then assembled into a specific technical unit. Based on this, a set of jobs of the maintenance system, the manufacture of this technical part, can be presented in the form of three subsets.

Let the definitions of the first subset

$T^1 = \{T'_1, T'_2, \dots, T'_l\}$ – correspond to the parts of the first type details;

$T^2 = \{T''_1, T''_2, \dots, T''_l\}$ – parts of the second type;

$T^3 = \{T^m_1, T^m_2, \dots, T^m_l\}$ – parts of the third type.
 where l – is the estimated required number of process units.

For the production of each type of parts, the appropriate equipment must be involved. The service system in our task will consist of m processors from the set $\{P_1, P_2, \dots, P_m\}$, which correspond to each process operation. Jobs $T_i, i = \overline{1, n}$ come into the system at the moment of the time d_i , in case of simultaneous arrival, the moment of arrival time is fixed $d_1 = d_2 = \dots = 0$.

Maintenance of the T_i job includes r_i consecutive stages, at stage $q, q = \overline{1, r_i}$, the T_i job is serviced by the P^i_q processor, $P^i_q \in \{P_1, P_2, \dots, P_m\}, 1 \leq q \leq r_i$, are not necessarily different. The process of servicing a job by a separate processor at some particular stage is called an operation. In this terminology, the process of servicing the T_i job consists in sequentially performing r_i operations, i.e. passing the part (object) through the processor is a process operation.

For each T_i job, $i = \overline{1, n}$, the processor paths are assumed to be set and may be different for different jobs.

The route for the job is described by the following expression:

$$L^i = (P^i_1, P^i_2, \dots, P^i_q, \dots, P^i_{r_i}), q = \overline{1, r_i} \tag{4}$$

Each processor serves jobs sequentially, with no more than one job at each point in time.

In the terminology of process operations, the maintenance process of the T_i job consists in sequentially performing r_i operations, each of which is characterized by an ordered triple of numbers (i, P, q) , where $i = \overline{1, n}$; $P \in \{P_1, P_2, \dots, P_m\}$; $q = \overline{1, r_i}$.

Duration $t_{ipq} > 0$ of execution of all process operations is assumed to be specified.

When the maintenance of the T_i job is completed, the processor P_i writes as:

$$t_{ipq}^{end} = t_{ipq}^{start} + t_{ipq},$$

where t_{ipq}^{start} – is the start time of the T_i job service by processor P_i .

Consider servicing multiple jobs on systems with different routes without interruptions. If the process of servicing the job T_i by the processor P_i starts at a time t_{il}^{start} , it proceeds continuously and ends at a time $t_{il}^{end} = t_{il}^{start} + t_{il}$.

Each processor can simultaneously serve no more than one job, each job can simultaneously be served by no more than one processor.

Part manufacturing routines help you record the process flow for each part type. Adhering to this plan, for each part we obtain the technological process of its passage of processors (machines) corresponding to a certain technological operation, that is, the flow routes of processors during the processing of parts.

Part 491.SMK.

1. A hoop place.
2. Lathe.
3. Mandrel.
4. Workplace.
5. Mandrel.
6. Workplace.
7. Mandrel.
8. Workplace.
9. Balancing.
10. Painting.
11. Workplace.

Part disk.

1. Lathe.
2. Workplace.
3. Layout plate.
4. Mandrel.
5. Workplace.
6. The stand.

Part cover.

1. Lathe.
2. Workplace.
3. Mandrel.
4. Workplace.
5. Layout plate.
6. Mandrel.
7. Workplace.
8. The stand.

Thus, a 8 of machines is involved in the process, that is, the process is provided by a set of processors $P = \{P_1, P_2, \dots, P_8\}$, which are different in terms of capabilities, speed and functional operations. Processor route for parts of the first type, i.e. for jobs from the set T^1 is as follows:

$$L^1 = (P_1^1, P_2^1, P_3^1, P_4^1, P_5^1, P_6^1, P_7^1, P_8^1, P_9^1, P_{10}^1, P_{11}^1) = (P_1, P_2, P_3, P_4, P_3, P_4, P_3, P_4, P_5, P_6, P_4) \tag{5}$$

for parts of the second type, that is, for jobs of the set T^2 :

$$L^2 = (P_2, P_4, P_7, P_3, P_4, P_8) \tag{6}$$

for third-type parts, i.e. for jobs from the set T^3 :

$$L^3 = (P_2, P_4, P_3, P_4, P_7, P_3, P_4, P_8) \tag{7}$$

Adhering to the entered designations, we can say that P_q^i with $q = 9, i = 1$ will be $P_9^1 = P_5$, similarly, you can define each processor number from the processor path for each part. The lengths of passage by the processor parts are known, which means that the moments of completion of servicing the part on the processor at a certain stage of the process are known.

The schedule of operation of the service system will be a set of indications as to which jobs were, are or will be serviced by which processors at each point in time. Our task is to consider all permissible schedules, that is, those that meet all the limitations arising from setting the task. Let schedule S correspond to the vector of times of completion of maintenance of jobs at this schedule

$$\bar{t}(s) = (t_1^{end}, t_2^{end}, \dots, t_n^{end}) \tag{8}$$

Suppose that

$$t_1^{end} = x_1, t_2^{end} = x_2, \dots, t_n^{end} = x_n$$

then $\bar{t}(s) = (x_1, x_2, \dots, x_n)$.

Let's build a real function of n variables

$$F(x) = F(x_1, x_2, \dots, x_n) = (t_1^{end}(s), t_2^{end}(s), \dots, t_n^{end}(s)) \tag{9}$$

Of all valid schedules, you must find the optimal schedule – the one that corresponds to the lowest value of $F(x): F(x) \rightarrow \min$ under the restrictions imposed on the times of completion of jobs t_{iPq}^{end} :

for jobs from the set T^1

$$t_{1P_1}^{end} \leq t_{1P_2}^{end} \leq t_{1P_3}^{end} \leq t_{1P_4}^{end} \leq t_{1P_5}^{end} \leq t_{1P_6}^{end} \leq t_{1P_7}^{end} \leq t_{1P_8}^{end} \leq t_{1P_9}^{end} \leq t_{1P_{10}}^{end} \leq t_{1P_{11}}^{end}$$

for jobs from the set T^2

$$t_{2P_1}^{end} \leq t_{2P_2}^{end} \leq t_{2P_3}^{end} \leq t_{2P_4}^{end} \leq t_{2P_5}^{end} \leq t_{2P_6}^{end}$$

for jobs from the set T^3

$$t_{3P_1}^{end} \leq t_{3P_2}^{end} \leq t_{3P_3}^{end} \leq t_{3P_4}^{end} \leq t_{3P_5}^{end} \leq t_{3P_6}^{end} \leq t_{3P_7}^{end} \leq t_{3P_8}^{end}$$

In order to minimize the total service time of all jobs in the system, it is necessary to find the lowest value of function $\overline{t_{max}(s)}$, that is, show at which schedule the latest time of completion of service of any job is minimal.

5. Conclusions

A minimum-length schedule allows you not only to complete all jobs as early as possible, but also ensures maximum use of system resources. Minimizing schedule length minimizes downtime, which in turn leads to maximum utilization of processors.

This article provides a model of a certain process, which, despite its simplicity, is so meaningful that it encompasses a wide range of practical streamlining tasks that go beyond the initial wording.

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THE EXAMPLE OF THE DESIGN OF MATERIALS**NEW ECONOMIC SYSTEM OF SOCIETY DEVELOPMENT****John Sitdson**PhD, Polonia University in Czestochowa, Poland,
e-mail: js@gmail.net, orcid.org/0000-0102-4843-3694**Summary**

The article deals with the information economy as a new economic system wherein information and knowledge are the main products. It is proved that a central component of an economic system is work with information and use of information systems in the process of management. The author substantiates the requirement for the search of new approaches to the solution of problems of development of institutional structures of information economy.

Keywords: knowledge, information, system, information economy, management.

DOI: <http://dx.doi.org/10.23856/xxxxxxxxxxxx>

Introduction

Global growth of information and telecommunication technologies, on the one hand, and also the necessity of development of scientific knowledge in the area of theory, methodology and practice of informative approach of study of information economy and society, on the other hand, determines topicality of consideration of the process of formation of information economy. Information turns into a strategic resource and factor of acceleration of scientific, technical and technological development and becomes a part of the real economy.

Subtitle of the body

It presupposes the conceptual comprehension of the process of establishment of an informative and technological method of production and related to it forming of an information paradigm in a modern economic science.

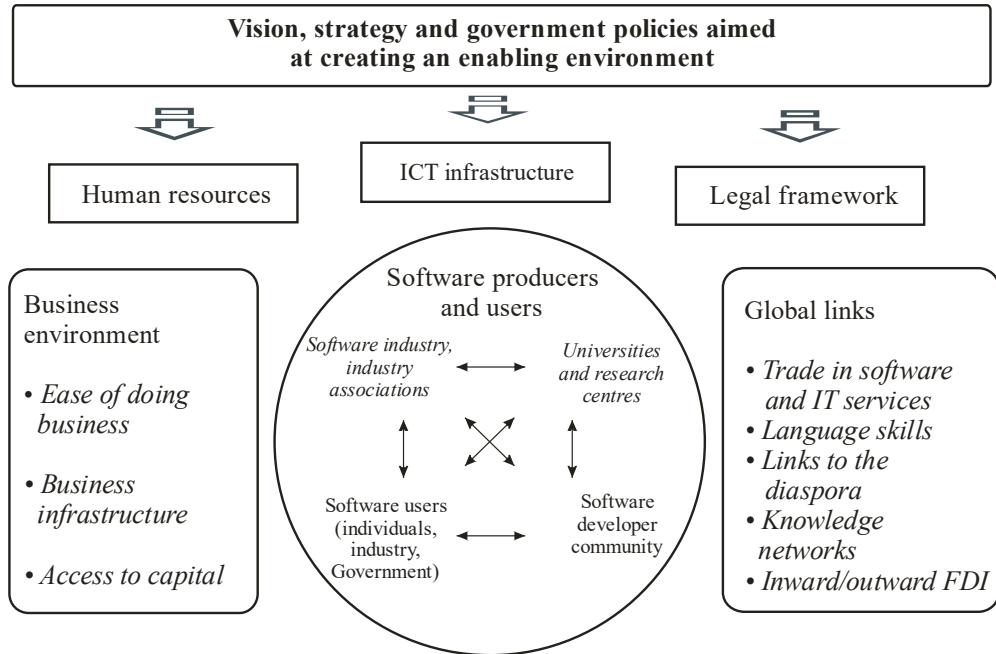
The evolutionary process of the establishment of information society is represented in researches of P. Drucker, who used a notion “information revolutions” (Drucker, 1989). He worked out the theory of the stages of development, which allows deeper understanding of the logic of establishment of information economy.

The term “information economy” was first used in 1976 in works of Mark Porat, an employee of the Stanford Centre and designated by him as a cluster of industries, engaged in the production of modern databases and facilities which provide their application and functioning (Porat, 1978). He is given the credit for introducing a distinction between the primary and secondary information sector of economy. A primary sector, according to his opinion, can be estimated quantitatively, while everything is much more difficult with the secondary one.

The Revolution in the development of information technologies allowed to talk about a global network, which materialized the globalization of economy. New information technologies, in fact, are not simply becoming the instruments of application, but also the

processes of development. The system-oriented analysis of the information economy with due regard to the forming informative paradigm of the economic theory requires additional consideration.

Figure. 1. A national software system (Information Economy Report, 2012)



Conclusions and suggestions

Conception of information economy includes fundamental definition of information society. It's defined as a system of connections and relations between individuals, which appear in the process of interchange of information concerning social and economic activity. Information economy is simultaneously defined as a system of public relations, wherein the information is a basic productive resource.

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