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"An investment in knowledge always pays the best interest." Benjamin Franklin

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FROM THE HISTORY OF THE FORMATION AND DEVELOPMENT OF THE NATURAL HISTORY MUSEUM OF THE DISTRICT COUNCIL OF TAURIDE PROVINCE (1899–1914)

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РЕЗЮМЕ

В статті розглядається історія становлення та розвитку природничо-історичного музею Таврійської губернії у 1899–1914 рр. Особлива увага приділяється науково-прикладному аспекту діяльності музею та його внеску у розповсюдження природничо-історичних знань серед населення регіону у зазначений період.

Ключові слова: природничо-історичний музей Таврійської губернії, науково-прикладний аспект діяльності, сільське господарство.

РЕЗЮМЕ

В статье рассматривается история становления и развития естественно-исторического музея Таврической губернии в 1899–1914 гг. Особое внимание уделяется научно-прикладному аспекту деятельности музея и его вкладу в распространение естественно-исторических знаний среди населения региона в отмеченный период.

Ключевые слова: естественно-исторический музей Таврической губернии, научно-прикладной аспект деятельности, сельское хозяйство.

ABSTRACT

The article examines the history of the formation and development of the Natural Historical Museum of Tauride province of 1899–1914. Particular attention is being paid to the scientific and operational aspects of the museum's work and its contribution to the dissemination of natural historical knowledge among the population of the region during the period marked.

Keywords: Natural Historical Museum of the Tauride province, scientific and application aspect of activities, agriculture.

PROBLEM STATEMENT

The Natural History Museum of the district council of Tauride province, established at the turn of the XIX – XX centuries played an important role in the development of the agricultural sector in Crimea. Selected aspects of the history of the museum's establishment and development in 1899-1914 are discovered in research works of modern scientists [2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 37]. It is necessary to examine the scientific and practical aspects of the museum's activities and its contribution to the dissemination of natural and historical knowledge among the population of the region in 1899-1914.

MAIN MATERIAL OF THE RESEARCH

The need for a comprehensive study of Crimea was long understood by the scientists of the district council of Tauride province, as there was not a single scientific work in this period that would provide a complete natural-historical description of the region.

At the end of January 1877 in Simferopol the beginning of the Natural-Historical Museum by the district council of Tauride province was laid [1, l. 2].

At the suggestion of the provincial vowel A. Steven, in 1877 the district council instructed the Administration, with the assistance of the county governments and private individuals, to start collecting materials on the natural-historical description of Tauride province. The meeting accepted the proposal and obliged the Provincial Administration to collect natural historical collections and make calculations. Employees of the Administration sent circular letters to various institutions and individuals asking them to send them various items of a natural and historical nature. The initiator of the creation of the museum A. Steven and others donated stuffed birds, fossils, minerals, etc., but the museum was not

opened because of the lack of a pre-designed plan for the organization of the institution and a specialist who could do it [28, p. 450; 14, p. 191-192].

In December 1879, at a general meeting of the VI-th Congress of Naturalists and Physicians, professor K. Kessler, understanding all the scientific interest and practical importance of studying the peninsula, proposed the establishment of a committee for comprehensive natural historical research of Crimea. The scientist planned to describe in detail the geology and climatology of the region with a list of species and varieties of plants and animals, indicating the relationship between flora and fauna and their dependence on geological and physical conditions. Such a study was possible due to the fact, that Crimea, occupying a relatively small space, accommodated a variety of geological, soil and climatic conditions and the associated wealth of flora and fauna [14, p. 190].

The proposal of professor K. Kessler was adopted by the VI-th Congress of Naturalists and Physicians, and the work of organizing Crimean Committee was transferred to the Imperial St. Petersburg Society of Naturalists. In this society, Crimean Committee was organized with various specialists, which began to function in 1883. The district council of Tauride province, recognizing the importance of such scientific study of Crimea, annually allocated 500 rubles to the committee. The committee sent specialists in botany, zoology and geology to Crimea, who collected large collections of flora, fauna and geology of the region, which served as material for various scientific works on the nature of the region. But in 1886, with the death of the initiator of the creation of the committee and the depletion of funds, its activity was suspended [29, p. 450; 30, p. 451; 14, p. 191].

Only in 1894 the provincial vowel A. Steven submitted to the Provincial Assembly the petition of the entomologist of the district council of Tauride province to create a small entomological station under the Provincial Administration for research of organisms harmful to agriculture, to divert the premises for installation of collections collected by the entomologist and to allocate 600 rubles for the acquisition of necessary scientific aids. The Provincial Assembly decided to establish an entomological office under the Provincial Administration [31, p. 706]. The main tasks of the museum's work were seen in the systematic study of the nature of the region with the aim of correctly organizing the struggle against various harmful in agricultural terms phenomena and organisms and creating prerequisites for the rational solution of many issues. The museum was to be a kind of reference bureau for the district council, to promote the growth of historical and agricultural education of the population and, as a result, to improve the economic situation of the country [1, l. 3]. To solve these problems, it was supposed to involve various science organizations and different scientists, local researchers and visiting scientists. The museum was to serve as a base for them to study various issues concerning Tauride province [14, p. 193].

In 1895, the entomologist's work on the organization of the Cabinet was approved by the Provincial Assembly, and he was allowed to expand the tasks of the Cabinet to collect natural and historical collections. To help the entomologist invited a preparer [32, p. 706].

In 1896, the Provincial Assembly heard the report of the Provincial Government on the Cabinet's status, found the office space insufficient and decided to instruct the Provincial Administration to submit to the next Assembly a draft and an estimate for the construction of a house for an entomological office, a natural history museum and other needs [14, p. 192].

According to the council, the museum faced scientific and practical tasks that were reflected in the draft of its charter [33, p. 708]. The scientific tasks were:

- collection of complete natural-historical collections of Tauride province (geological, mineralogical, botanical, zoological), samples of cultivated plants, seeds, models of agricultural machines; cartograms and photographs, which served as a material on the state of agriculture in the region;
- scientific development and description of collected collections;
- supporting links with local and non-resident specialists and scientific societies, for processing their collected collections, provided that the first copies of the museum are left;
- a clear familiarization of the museum manager or curator with the objects of the museum;
- organization of public readings on issues relating to the tasks of the museum;
- publishing works on the natural history and agriculture of Tauride province; popular brochures and manuals on various issues of agriculture and the fight against pests.

The practice tasks were:

- system description of individual localities on issues of agriculture and economy, culture or crafts (horticulture, viticulture, afforestation, tobacco growing) study of fishing and other fisheries;
- study of organisms harmful to agriculture and development of means of combating them;
- addressing the issues of the public school (organization of excursions with rural teachers to familiarize themselves with local flora and fauna, rocks) [36, p. 197-198].

December 12, 1899 in Simferopol was opened natural history museum of the district council of Tauride province, which in 1900-1908 became the center of study of the flora and fauna of Tauride province. The museum was based on the collections of the entomological cabinet for 1895-1899. Its head was the entomologist Z. Mokrzhetsky. The new premise was ready already in the autumn, where the collections were dismantled, brought in a row and arranged in storefronts. The opening ceremony was attended by the Tauride Governor P. Lazarev, the Provincial Governor of the Nobility S. Skadovsky, the Chairmen of the Academic Archive Commission A. Ilyin (the mayor of Simferopol), the Chairmen of Medical Society P. Alyanchikov, the Simferopol Department of the Imperial Russian Horticultural Society, the State Property Manager P. Ruff, the delegate of the Black Sea department of the Russian Fisheries and Fish Fisheries Society, the chairman of Crimean Department of the Russian Beekeeping Society K. Pamfilov and other guests. After the solemn speech of the head of the museum Z. Mokrzhetsky on the role of the institution in Crimea, the chairman of the Simferopol department of the Imperial Russian gardening society P. Raff noted the important scientific and practical importance of the museum for the local population in understanding the knowledge of the natural resources of Tauride province, touched on the problem of pest control harvests [27, p. 46; 15, p. 1-4].

The staff of the museum first included only three posts: the head of the museum Z. Mokrzhetsky, the custodian S. Zernov and the preparer K. Osterman. Later in the museum appeared assistant provincial entomologist, the head of the library and ministers. The manager was engaged in general issues of the museum, the determination of the received items, supervised the activities of the curator and the preparer in the museum, and corresponded with various institutions and individuals regarding the internal affairs. In order to familiarize the children with the natural history of agriculture, Z. Mokrzhetsky was engaged in the compilation of pest collections for district council administrations of Tauride province and schools at their request. So, in 1900 a collection was made for the Yevpatoriya district council administration and five school collections for district council schools. Z. Mokrzhetsky left a lot of printed works and articles devoted to the tasks of the natural history museum, the protection of valuable crops from frost; organization of protection of fields and gardens, disease of grapes, fighting with harmful insects and fungal diseases in Crimea; new methods of nutrition and treatment of plants, reasons for the formation of cortical raids on fruits; the melliferous plants of the peninsula, the diseases of cereals, diseases and the treatment of plants. He also took part in the work of Crimean Society of Naturalists and Nature Amateurs as its chairman and editor of the "Notes of the Society", was the director of the Experimental Fruit Growing Station in "Salgirka", in 1913 he was elected vice-chairman of the congress of figures on applied entomology [15, p. 8; 16, p. 6; 18, p. 8-9; 19, p. 7; 22, p. 18; 24, p. 22; 36, p. 27].

The keeper kept museum books, inventory and a library, looked after collections and works on their distribution, took measures to ensure the integrity and preservation of museum collections, check the property of the museum, library and warehouse, replenish the museum, take photos from damage samples, from harmful insects and animals. In March 1902 the curator S. Zernov was transferred to the Biological Station of the Academy of Sciences in Sevastopol as the head of the department. His place was temporarily occupied by a student of Moscow University L. Molchanov, invited in 1901 as a manager to enrich the museum with various collections. He collected valuable collections of birds, butterflies, other insects and invertebrates. Later S. Merkulov, a student of St. Petersburg University, who worked for 4 years in St. Petersburg in the Mobile Museum, came to work in the museum. In August 1909 B. Mozheiko became the curator. He did a great job: disinfected all the collections, compiled a catalog of the zoological department of the museum, prepared a number of works for printing. In 1910, he was replaced by botanist, trainee at the provincial entomologist of the district council of Tauride province A. Janata, who listened to the course of the agricultural department of the Kiev Polytechnic. In addition to his duties, he studied the flora of the steppes, weedy and grain plants of the province, wrote many articles [15, p. 6-9; 16, p. 2-9; 17, p. 7; 22, p. 18; 23, p. 3, 15; 24, p. 24].

With the departure of K. Osterman in 1901 in the museum for almost a year there was no preparer. In April, this position was taken by A. Laas, a preparer at the zoological office of the Yuryev University. In July, he was succeeded by Z. Svatosh, who earlier assisted the museum and took part in excursions to collect insects and birds. In August 1910 M. Ochan was invited from the museum as a preparer of the museum. Frequent replacement of employees hampered the activity and development of the museum, replenishment of its new collections. Only after 1911 the museum workers stayed longer than their predecessors [17, p. 6; 18, p. 7; 23, p. 20].

The activity of the Natural History Museum was of an applied nature and was connected with the economy of Crimea. Here, for the first time at the scientific level, started studying artesian wells, soils, industrial fishing, sericulture, beekeeping [37, p. 11].

To visit the museum was open for free on Sundays; for visitors and for inquiries on entomological issues it worked every day. According to estimates, already by November 1900 the museum was visited by about 7,000 people, mostly young people. From January to November 1901 – 10,449 people on Sundays (visitors on weekdays were not recorded), and in 1912 – 31,148 people. A lot of them came not out of curiosity, but to obtain certain information [15, p. 6; 25, p. 4; 16, p. 2, 4].

Visitors repeatedly expressed the desire to hear explanatory statements on natural science. The staff strove to fulfill requests, but this work was not systematic because of the small room of the museum, which was located in five rooms.

The Provincial district assembly in 1901 recognized the museum as close and decided to give three more rooms that were on the same floor as the museum. However, they did not have to use them, since here in the first half of 1902 the Archives of the Council was located, and in the second half of the year – the Statistical Bureau. Thus, the museum remained in the old premises, which had a negative impact on its development, as well as on the health of employees. Only in 1903 the museum expanded to eight rooms. At that time, the agricultural department was established, in which samples of local cereals grown under various processing conditions and fertilizers were collected. In 1908, two more rooms, previously occupied by the Museum of Antiquities, were assigned to the natural-historical museum. There was an opportunity to pay special attention to gardening, which was of great importance in Crimea. Through the efforts of state institutions and private individuals, this department quickly replenished with samples. In 1909 the museum occupied 12 rooms on the first floor of the Administrative Board and contained large collections of flora, fauna and geology of the country [35, p. 711; 17, p. 5-6; 18, p. 2, 4; 21, p. 5-6; 22, p. 5].

The museum maintained close ties with the Sevastopol biological station, the Mobile Museum in St. Petersburg. As far as possible, the museum shared its material with other scientific institutions: the Kiev Polytechnic Institute, the Moscow Agricultural Institute, the Moscow University, the Women's Medical Institute in St. Petersburg. The Natural History Museum provided all possible assistance to private individuals and institutions requesting background information [16, p. 9; 20, p. 22; 15, p. 15].

In this period, many council districts became interested in the creation of such museums and the organization of pest control. It was on these issues that the museum provided information and provided every assistance. Kherson provincial government, council district of Kursk, district provincial government of Ekaterinoslav province, and the Warsaw Horticultural Society addressed the creation of natural historical museums and sections of applied entomology. In the organization of pest control the museum cooperated with the Kamyshinsky council district, the Astrakhan Horticultural Society, the Kharkov Agricultural Commissioner, the Kiev Agricultural Syndicate and other organizations. Thus, first of all, taking into account the interests of the district council of Tauride province, the museum, as possible, also satisfied the numerous requests of other provinces [18, p. 14; 17, p. 13-14].

With the expansion of the museum's activities, its tasks were expanded: bringing agricultural and natural-historical knowledge to the agricultural environment for proper farming; the device attached to the Provincial administration of the readings and demonstrative explanations on the museum collections, which was of an applied nature and acquainted listeners with various questions of natural science in relation to agriculture. In May 1900 in the state estate "Salgirka" near Simferopol at the temporary courses on pest control of fruit gardens organized by the Ministry of Agriculture and in September of the same year in Kharkov, at the petition of the Southern Acclimatization Society, readings were held on applied entomology, which took place thanks to collections and preparations of the museum. In 1903, the museum created a terrarium with snakes, lizards and turtles, which greatly attracted the attention of students [15, p. 17, 8; 18, p. 3].

In 1905, at the suggestion of the district council of Tauride province, the museum undertook the task of preparing school collections for insect pests, beekeeping, silkworm breeding, golden-haired, unmarried silkworm, apple moth, silkworm ring with the corresponding explanatory text. The purpose of the collections was to familiarize the population of the province with the life and development of the main pests of agriculture, the means of combating them. Employees of the museum saw in this task practical and general educational significance for the school, in view of the lack of visual educational equipment for natural science. Also, they began collecting material for school collections of minerals, similar to the Mobile Museum in St. Petersburg. From the museum systematically handed out to schools benefits: samples of minerals, stuffed birds and animals, preparations for the development of bees and silkworms. Thanks to this, the

mastering of the educational material by schoolchildren was improved. The museum gradually made natural-historical collections, with the aim of creating a mobile museum for visual teaching of natural sciences in schools [20, p. 2; 21, p. 4, 7].

The activities of the museum attracted the attention of a wide section of the population. In late 1903 the museum was visited by the Tauride Governor V. Trepov. Having thoroughly acquainted himself with the museum's collections, his activities and Z. Mokrzhetzky's research on nutrition and tree treatment, the governor left a positive response about the museum's work in the book of visitors. In 1904 the exhibition collection of the museum was significantly enlarged, especially the zoological department [19, p. 14, 2].

Interest in the museum grew. Among visitors of the museum you could find a simple handyman, a visiting peasant, schoolchildren, urban intelligentsia and scientists. In 1904 he was visited by a numismatist and historian A. Bertier-Delagard, professor of zoology of the Moscow Agricultural Institute N. Kulagin, professor, a member of the Imperial Academy of Sciences, Baron V. Rozen, L. Simirenko, outstanding geologist K. Focht and others; 11 zoologists who worked in the summer at the Sevastopol biological station; students of the natural sciences of Kharkov University together with Professor V. Reingard and T. Timofeev, excursion of students of the senior classes of the Warsaw Commercial College [21, p. 9; 19, p. 14].

In 1905, the director of the Zoological Museum of the Academy of Sciences, Academician V. Zalensky visited the museum and left a positive opinion about the scientific and practical activities of the museum. In 1910, the museum's services were used by the professor of zoology A. Brauner, professor K. Merezhkovsky, the Academy of Sciences and the Botanical Garden of Moscow University, in 1912 - the council district of Melitopol county, the Sevastopol Biological Station, the Department of Agriculture expedition, in 1913 – the specialist on beetles V. Pliginsky, the trainee of Department of agriculture on applied entomology F. Shcherbakov. Collections of the museum were constantly replenished. In 1900 there were 454 of them, in 1913 – 2699 [20, p. 22; 23, p. 22; 24, p. 29; 15, p. 13; 26, p. 31, 8].

In 1909, the museum operated various departments: entomological (invertebrates, insects), botanical, geological (general geology, mineralogy, paleontology, soil science, hydrology, petrography), zoological, horticulture, agricultural (beekeeping).

The museum undertook the development of important issues for local agriculture. In 1905, a new hydrological department of the collection of rock samples from artesian wells was developed and put in order, which was of great practical and scientific interest. For a more rigorous scientific statement of artesian art developed in the province, a careful study of the geological structure of Tauride province was supposed. Professor N. Golovkinsky initiated the study of artesian wells. His business was continued by the geologist P. Dvoichenko, who, at the request of the museum, invited the Provincial Government to examine artesian wells in the province, mapping them to collect data on the location of the well, its depth, drilling time, the quantity and quality of the water produced by the wells. He studied and collected information from all over Tauride province. These questions were also dealt with by geologists K. Focht (devoted to the geological study of the peninsula for thirty years) and the ordinary professor of St. Petersburg University N. Karakash. In 1910, material was collected on artesian wells and samples of rocks mined during drilling, was systematized and a detailed drilling log was compiled for each collection. The activity of P. Dvoichenko was of great scientific and practical importance. The material collected by him was reflected in the hydrological map of Crimea, thanks to which it was possible to present a complete picture of the location of artesian waters in the province, the geological structure of the region and, taking into account the hydrogeological features of the localities [12, p. 1-14; 20, p. 3, 6; 27, p. 44].

Petrographic department included igneous, sedimentary rocks and metamorphic schists. In the department of general geology, we have collected weathering forms of sedimentary rocks, products of decomposition of igneous rocks and their transformation into soil, samples of changes in sedimentary and igneous rocks, mineral veins, patterns of structures. Department of Soil Science due to the activities of the head of the soil laboratory N. Klepinin was put especially instructively. Here samples of various soils, their analyzes, compiled soil maps of various counties of Tauride province were collected in the uyezds, natural cuts of soils, pictures and photographs were displayed, reflecting different moments of soil formation [22, p. 7-9].

The fauna of the region was represented in the zoological department. Some birds and animals are exposed in scarecrows, but most were stored in skins for scientific research. The marine and freshwater fauna was less well represented due to the distance to the sea from Simferopol.

They also engaged in the research of fishing in Tauride province, initiated on behalf of the Provincial council district assembly by S. Zernov. The reports presented to them contained important information and a brief description of the state of fishing throughout the entire seacoast of the province. In 1908, the Main Directorate of Agriculture began to work out the rules of fishing in the Black Sea. For the study of the coasts of Tauride province, fisherman N. Maksimov was sent to work. He confirmed S. Zernov's conclusions and found out the reasons for the negative trend in this area of agriculture. In 1909 a meeting was held from representatives of various departments and stakeholders to discuss the draft fishery rules. S. Zernov was invited as a specialist in this field. At the meeting, the issue of taxation for fishing was resolved, since high rates not only hampered the development of fishing, but made it completely unattractive in terms of revenue and for deployment on an industrial scale [34, p. 740].

In the entomological department special attention was paid to the applied side - the study of harmful insects in agriculture and the development of means of combating them. By 1914 Z. Mokrzhetzsky, an entomologist, published more than 150 works on agricultural entomology. Crimea became a practical school, where they came from other places to get acquainted with the means of fighting pests of gardens. Famous American entomologist L. Howard, who is familiar with the situation of agricultural entomology in all countries of the world, visited Crimea in 1907 and gave him a significant place in the report at the International Congress of Zoologists, as the most developed region in this area, and noted a special contribution to the development of the matter Z. Mokrzhetzsky [22, p. 9-12].

The botanical department was represented by the herbarium of Crimean flora, collected and brought into the system by the museum staff V. Andreev and B. Bazhenov; small herbariums of individuals; a collection of mushroom parasites. It also exhibited collections of weeds of Tauride province with detailed information about their scientific and local name, geographical distribution in the province, whereabouts, nature of the damage caused, in use by the people for various purposes [22, p. 12; 24, p. 13].

Agricultural and horticultural departments were presented worse than others due to lack of sufficient premises, sufficient funds and agronomists in Simferopol, who wanted to work in the museum. Here was located the department of beekeeping, consisting of various beekeeping supplies, delivered by Crimean Department of the Society of Beekeeping. Realizing the special importance of such departments for the region where fruit growing, horticulture and viticulture developed, the museum manager submitted a program and an estimate for their design to the Provincial Office. However, there was no provision, and the program was only partially implemented [25, p. 14; 22, p. 12].

There was a library in the museum. In 1902, it contained 1,065 books and brochures, 1,000 volumes of periodicals received from 54 societies, at the beginning of 1914 – 3,948 books, 393 non-periodicals [16, p. 12; 26, p. 21].

Until 1911, many scientific works of the museum staff have accumulated. This caused the need to create "Proceedings of the natural history museum of the Taurida provincial council district". Their release began the following year under the supervision of the museum's director [13, p. 125].

In 1913, changes were made concerning the premises and departments of the museum. In January, the Provincial council district Assembly decided to develop a plan and budget for the construction of the museum building. It was supposed to add archaeological, ethnographic and agricultural departments [26, p. 1-2].

CONCLUSIONS

So, the natural history museum was one of the most important scientific centers in the southern regions of the Russian Empire, the activity of which provided for the protection of monuments, their scientific study, systematization [38, p. 72]. Gradually, the museum moved from a purely scientific activity to a scientific and practical one with the aim of popularizing and disseminating agricultural knowledge.

With the assistance of the council district, the striving of the staff, despite insufficient allocation (200 to 600 a year), created a scientific and educational institution that gained fame and recognition not only in the Russian Empire and abroad, but also among the general public. The Natural History Museum was the scientific base for many scientists of Crimea, and for some - the central starting point for research activities. A prominent place in his work was occupied with issues of popularizing science and education, solving various applied problems related to the needs of the economy of the region.

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THE INFLUENCE OF THE SEMIOTIC STRUCTURE OF MYTHS OF HUMAN BEHAVIOR IN AN URBAN ENVIRONMENT

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ABSTRACT

In scientific research using the methods of neurophysiology of higher functions of the human brain, the process of the influence of semiotic structures of myth on the forms of social and individual consciousness in the urban environment is modeled. A model for introducing psychological attitudes into the subconscious and the formation of humanistic patterns of human behavior and activity in the urban environment in the unconscious psyche are presented. As a result, presented urbanistic concept, including a manipulation technique that will provide a humanistic form of human behavior in the urban environment, without destroying it as a person, but revealing and raising the level of its creative and spiritual potential.

Keywords: urban environment, spirituality of the environment, spirituality of the society, genetic memory of the environment, toponymical image of the environment, mental-semiotic system, urban folklore, myth, psyche, consciousness, behavioral environment, egregor, code.

РЕЗЮМЕ

В исследовании с помощью методов нейрофизиологии высших функций головного мозга человека представлен процесс воздействия семиотических структур мифа на формы общественного и индивидуального сознания в городской среде. Представлена модель внедрения в подсознание психологических установок и формирование гуманистических паттернов поведения и деятельности человека в городской среде в бессознательном психики. Результатом исследования является урбанистическая концепция, включающая методику манипулирования, которая обеспечит гуманистическую форму поведения человека в городской среде, не уничтожая при этом его как личность, а раскрывая и повышая уровень его творческого и духовного потенциала.

Ключевые слова: городская среда, духовность среды, духовность социума, генетическая память среды, топонимический образ среды, ментально-семиотическая система, городской фольклор, миф, психика, сознание, поведенческая среда, эгрегор, код.

РЕЗЮМЕ

У дослідженні за допомогою методів нейрофізіології вищих функцій головного мозку людини моделюється процес впливу семиотичних структур міфу на форми суспільної та індивідуальної свідомості в міському середовищі. Надана модель впровадження у підсвідомість психологічних установок і формування гуманістичних патернів поведінки і діяльності людини у міському середовищі в несвідомому психіки. Результатом дослідження є урбаністична концепція, що включає методику маніпулювання, яка забезпечить гуманістичну форму поведінки людини у міському середовищі, не знижуючи при цьому його як особистість, а навпаки, розкриваючи і підвищуючи рівень його творчого і духовного потенціалу.

Ключові слова: міське середовище, духовність середовища, духовність соціуму, генетична пам'ять середовища, топонімічний образ середовища, ментально-семиотична система, міський фольклор, міф, психіка, свідомість, поведінкове середовище, егрегор, код.

FORMULATION OF THE PROBLEM

The urban environment reflects all the social processes taking place in society, including the crisis of the spirituality of the individual-society-nation, characteristic for the period of globalization. The nature of the modern urban environment clearly does not correspond to the nature of man as a spiritual being, ignores spiritual human needs, which initially destructively affects the various structures of his psyche, and subsequently deforms and destroys the person. Spirituality manifests itself in practical forms of human interaction with the environment and has a direct and inverse relationship. The higher the spiritual potential of people inhabiting this environment, the higher its spiritual fullness. The brighter and more spiritual the individuality, the stronger the "spirit of the environment" [1]. The development of the urban concept of increasing the level of the spiritual potential of the urban environment that would satisfy the person's

genetic need for peace of mind when interacting with the environment, consistent with his spiritual and mental perception, and at the same time, contributed to the spirituality of a person - the society and the nation.

For this, it is necessary to start the mechanism of programming of the person and society in the urban environment through installations. The installations in the urban environment will be represented by myths as the most important structure of man's spiritual being. Being a kind of regulator of the life of sociocultural systems, it is the myth that determines a certain social structure. K. Levi-Strauss tried to find in myths universal structures of management of a society [1]. An appeal to the theory of neurophysiology will help in constructing an algorithm for "coding" the human brain with the help of myth to form humanistic patterns of behavior and human activity in an urban environment. Urbanistic as a way of modeling social processes and spiritual and practical activities in the city will help in solving the problem of the crisis of spirituality in society.

SUMMARY OF THE BASIC RESEARCH MATERIAL

The urban environment is hypertext, a system of multi-layered and non-linear information organization. The larger and older this environment is, the more information in different ages it accumulates, which in turn forms the genetic memory of the environment. The genetic memory of the environment is associated with the genetic memory of the nation [2], while simultaneously a complex socio-cultural formation and information system. Informational-semiotic layer of the environment is associated with urban folklore and is an integral part of the spirit of the nation [1]. Urban folklore forms a complex spatial-mental system and has a great power of emotional impact on a person. This level of perception is characterized by the fact that emotional-aesthetic signs "embodying" experiences and ideas that replace phenomena of reality are "included" in it. So, there is a virtual reality of the urban environment. Toponymic image or virtual topographic network of the territory with a variety of semantic structures - "narratives" - form the spiritual essence of the urban environment. On the one hand, "narrative" is defined as a variant of urban folklore associated with some material object in the environment, on the other hand an artificial construction based on some historical event without concrete materialization in the urban environment [1]. The toponymic image of the urban environment is a mental-semiotic system and is part of the spiritual culture of a nation, an ethnos. So, the mentally-semiotic system correlates with the territorial-cultural system. This connection is expressed in the fact that the environment endowed with mythology is created by imposing a mythological space on the material basis - the toponym territory [1].

In order to determine how a person as a spiritual being interacts with the urban environment, the author identifies two human beings as a biological and spiritual being and represents the spirituality of man by his psyche. Man, as a psychic being, needs myths, legends, tales, legends from the environment, he needs information from her. In the process of the human psyche, when a myth is perceived as the most important structure of a man's spiritual being, his spiritual world is formed, shaping and regulating the behavior and activity of man in the urban environment. Human's behavior in the environment is set by the archetype of this environment. R. Barker connects human behavior and the environment into a unified system [3], [4], [5]. To describe it, he introduces a new concept and a new unit - a place of behavior. The place of behavior is an objective spatio-temporal situation, which is characterized by a certain set of forms of behavior. Elements of a place of behavior are people and the environment around them. The place of behavior is characterized by the consistency of acts of behavior and physical objects [4], [5]. The place of behavior exists only in action. At the same time, the constant pattern of behavior of a group of people that is peculiar to a given place, which obeys a certain scenario, is continuously recreated. Considering a person as a component of a place of behavior, one can make a certain prediction about his behavior if the program and state of the given place of behavior are known, and also the position of the individual in it. The discrepancy between the place of behavior and the person arises in two cases: the discrepancy between the number of participants and the number of roles; inconsistency of behavior and physical environment. The physical environment and the person are not directly related, their communication is carried out within the metasystem in which they are both included. The metasystem here is culture. That is, within the framework of this culture, these forms correspond to the place in question. And the main and decisive here in the theory of R. Barker is the place of behavior, and things and people are its elements. The program and the state of places of behavior affect the interconnection of people and things [4], [5].

Since the behavioral environment is inseparable from urban mythology and is the field of formation of actions, the appeal to myth as the most important structure of man's spiritual being will help in constructing a model of the process of influence of the semiotic structures of myth on forms of social and individual consciousness. The model will include an expanded arsenal of ways to influence the psyche of man and society with the goal of introducing psychological attitudes into the subconscious and shaping humanistic patterns of behavior and activity in the urban environment in the unconscious psyche.

So, a person perceives not only the material medium, as a biological being through the senses through visual, auditory and other sensations, but also the spiritual environment through the psyche, which is his spiritual world. To determine how the myth as a phenomenon affects the behavioral reactions of a person in the environment, it is necessary to turn to the neurophysiology of the higher functions of the human brain, as well as to the theory of perception.

There are three main functions of the psyche [6]. The first is a reflection of the surrounding reality, the second is the preservation of the integrity of the organism, the third is the regulation of behavior. These functions are interrelated and are elements of the integrative function of the psyche, which consists in ensuring human adaptation to the environment. Man has the ability not only to respond to information from the environment, but also the ability to form motivated and purposeful behavior, conditioned by the presence of his consciousness. Consciousness is the highest level of mental reflection and regulation, inherent only in man [6]. It acts as a continuously changing set of sensory and mental images in the inner world of man. Thanks to consciousness, a person regulates his behavior in the environment. All the perceived information from the environment a person refracts through his system of ideas about himself and shapes his behavior based on the system of his values, ideals and motivational attitudes. Perceived most often unconsciously, it is the myth that participates in the formation of the personality, both in the process of its formation, and at the stage of inclusion in the society of the already formed person. Myth fulfills the function of primary social control, maintenance of elements of moral and legal regulation of the behavior of the individual and social subject in the environment [1]. The spiritual function of the myth in the spiritual being of a person is that it promotes the development of the personality, being a factor in the inclusion of a person in social life. Finding the influence of the myth of a person in the environment contributes to the formation of his system of values and assessments [1].

So, in the context of increasing the level of the spiritual potential of the urban environment, a global opportunity to increase the level of spirituality of a person-society through a manipulative technique is seen. Under manipulation, it is necessary to understand the specific form of spiritual impact on the person's psyche (consciousness) [7], with the aim of controlling his behavior in the urban environment. Spiritual management of man is due to the influence of irrational and emotional means. The main effect of making changes in the motivational structure of the human psyche is to motivate him to humanistic behavior and activities in the urban environment. Bessonov B.N. defines manipulation as a form of spiritual influence of hidden domination [8]. Volkogonov D.A. under manipulation, he understands the dominance over the spiritual state of man, the change in his inner world [9].

So, the main components of the implementation of manipulation are:

- the object of manipulation is the consciousness of a person and society, to which a certain influence is directed for a specific purpose;
- the subject of manipulation is a human being-society;
- the instruments of manipulation are a mentally-semiotic system of the urban environment (urban folklore, myths) that allows to influence the consciousness of a person and society in order to achieve a specific goal.

Since the modern "mass man" is not able to think rationally, it is necessary to form his consciousness, inspiring appropriate ideas, thoughts, norms of behavior. Manipulation by the consciousness of the "mass man" is not only necessary in the period of globalization, but inevitably as a system of methods of "light, imperceptible" which should be a "humane", "legal" means "for imposing a certain behavior on a person. The author's urban concept will include a manipulation technique that will provide a humanistic form of human behavior in an urban environment without destroying it as a person, but rather revealing its creative and spiritual potential, its morality, culture. The consequences to which such a search can lead are so far difficult to fully assess. These can be breakthrough directions in accelerating the mental activity of a person, increasing the efficiency of his upbringing, raising the culture, spirituality, disclosing creativity that meets the requirements of the present and is fixed in normative documents, namely: the Decree of the President of Ukraine "National program of patriotic education of citizens, the formation of a healthy way life, the development of spirituality and the strengthening of the moral foundations of society, "" On the National Doctrine of Education Development "[10], " National Country the development of education in Ukraine for the period up to 2021 [11], the Law of Ukraine "On Education" [12], "On the Protection of Public Morality" [13]. The relevance of the research is also in accordance with the principles and recommendations of the Bologna Declaration (1988), which contributes to the spiritual development of the Ukrainian nation "to win over the cultural, social and economical Maybutt people", to achieve "the proper harmony of the mediocrity of the middle of that life" [14]. The study answers "The concept of humanistic development of Ukraine for the period up to 2020" (2011p.) [15]. With the help of special information-suggestive methods it is possible to inculcate interest and love for the national spiritual culture and customs, traditions, continuity to the genetic memory of the nation. Correction of the subconscious sphere of the psyche will occur constantly, due to the intense information flow contained in the myth. In the human psyche, stable automatism will be

formed, which will somehow begin to influence its needs, actions and behavior in the urban environment. This is one of the objectives of the urban concept - the impact on the human subconscious in the urban environment - the "coding" of the humanistic spiritual needs of the nation in order to form a potentially spiritual person in an urban environment. Correction of the subconscious sphere of the psyche will occur constantly, due to the intense information flow contained in the myth. In the human psyche, stable automatism will be formed, which will somehow begin to influence its needs, actions and behavior in the urban environment. This is one of the objectives of the urban concept - the impact on the human subconscious in the urban environment - the "coding" of the humanistic spiritual needs of the nation in order to form a potentially spiritual person in an urban environment. The effect of "coding" will arise regardless of whether the person perceives this information consciously or not.

The author's urban concept is a new management tool for the state of mental and physical health and human behavior in the environment, including at the subconscious level. This will allow us to introduce into the human memory unconscious information that will later shape humanistic behavior and its activities in the urban environment, its aesthetic tastes, spirituality and so on. Unconscious information will remain in memory and will be perceived as its own.

Humanistic influence on the human mental sphere is possible not only when it is directly found in this environment and in contact with environmental elements, but also remotely, outside the environment [16]. What is determined by the distribution of the myth at the local, regional, territorial and world levels. This approach will connect more people's minds to the mentally-semiotic system of the urban environment by modeling the cognitive system of images (virtual reality) in people's minds and creating a sustainable motivation for visiting the urban environment and its structural elements that underlie tourism.

The introduction into manipulative practice of the myths of the urban environment in the role of attitudes to the human psyche will contribute to the harmonious development of the individual, as well as mechanisms for controlling and neutralizing the negative impacts of the transforming society of the period of globalization. So, the urbanist, acting as a manipulator, fills the urban environment with a semantic meaning. Information that enters the brain of a person from the environment will use this or that archetype, triggering in the human psyche the corresponding reactions and the fulfillment of attitudes. In the sub consciousness there are full-fledged settings that turn into patterns of behavior. It should be noted the properties of urban folklore as a communicative sign system. Because it is with the help of this kind of influence that a psychological treatment takes place not of an individual person, but of a nation as a whole. It should be noted that information can be enhanced if it was enriched with emotions. Any emotions, emotional filling with the semantic load of any information, significantly enhances memorability, forming a dominant in the cerebral cortex, and through this, psychological attitudes in the subconscious. If the information "hits by feelings", then this information is firmly digested in the subconscious, for a long time remaining in memory [17]. Any emotions, emotional filling with the semantic load of any information, significantly enhances memorability, forming a dominant in the cerebral cortex, and through this, psychological attitudes in the subconscious. If the information "hits by feelings", then this information is firmly digested in the subconscious, for a long time remaining in memory [17]. Myths of the urban environment have a strong emotional impact on the person in the environment. Speaking of the settings, we must say that such attitudes are expressed in the programmed behavior patterns, which are used to distinguish several installation functions in the process of cognition and motivation: cognitive (*regulates the process of cognition*), affective (*channeled emotions*), evaluative (*predetermines assessments*) and behavioral (*directs behavior*).

So, the myth of the environment has a psychological effect on the following areas of the human psyche:

need-motivational (knowledge, beliefs, value orientations, drives, desires);
intellectual and cognitive (sensations, perceptions, ideas, imagination, memory and thinking);
emotional-volitional sphere (emotions, feelings, moods, volitional processes);
communicative-behavioral (the nature and characteristics of communication, interaction, relationships, interpersonal perception) [18].

There are three levels of effects on the psyche [19]:

- 1) Strengthening existing in the minds of people the right attitudes, ideals, values, norms. Consolidation of these elements of consciousness in the worldview and attitudes.
- 2) Private and small changes in views on an event, which affects the position and emotional attitude of a person to a particular phenomenon.
- 3) The radical, cardinal change in life attitudes based on reporting dramatic information and unusual new data.

The implementation of the first two installations is achieved through manipulation in a fast period of time, and the third level, which characterizes a fundamental change in attitudes in the models of mass behavior, becomes possible as a result of prolonged exposure to the psyche [20].

So, a person exists not only in material, material and objective, but also in spiritual, cultural, symbolic and symbolic spaces. Informational-sign properties of the environment arise in the process of its birth. The consciousness of people in the urban environment unites around some ideas of the myth and they begin to act in encoded algorithms. In ontological meaning, the myth that owns the consciousness of a group of people is called the egregor. Consciousness of people are united through the semiotic system of myth into ethnoses, nations, feeding the corresponding egregors (L. Gumilev about "passionarity energy") with the energy of their activity. So the myth acts as an egregor - a structure located in the information space of the urban environment and capable of influencing its thoughts and perception of the world. Egregor is an information field that consists of the thoughts and emotions of groups of people united by a common idea (myth). That is, the more people live and think according to similar rules, the stronger the egregor becomes, it is easier to attract new people to oneself. He is able to interact with and influence human consciousness. In this way, egregor is a kind of collective consciousness with one or another idea. On the influence on human life conditionally shared constructive (creative) and destructive (destructive) egregors. Attention of the author will be focused on constructive, creative egregors. Constructive egregors are neutral and positive, free and voluntary. A person can easily enter or leave this egregore. He can consist of several egregores and they will not deprive him of his independence, personal opinion and choice. Constructive egregors broadcast positive beliefs that improve the lives of people involved in them. The author believes that it is necessary to remove destructive egregors from the life of a person-society. It is necessary to disconnect the consciousness of a person and society from negative egregors and reconnect his consciousness to humanistic ideas and spiritual values of the genetic memory of an ethnoses.

The model of the process of connecting the consciousness of the socium-nation to the myth as a sign system and the most important structure of spiritual being will consist in the following.

The brain of people, regardless of their distance from each other, is connected to a single sign system - a myth that, through signs and symbols representing the coded signal, forms the appropriate psychological settings in the human subconscious. In this way, a person in the environment receives a certain code. Being encoded - they begin to think in the given algorithms. To activate the code it is enough to give a signal. Speaking about of the coding the brain (psyche) through the myth of the environment, it is necessary to pay attention to the fact that scientific methods of such influence were developed in neurophysiology. The impact on consciousness through new information occurs as follows. Initially, the word is encrypted in the electrical impulses of the brain as complex audio signals, the impulse activity of neurons (code) arisen with such encryption is addressed to the long-term memory accumulated as a result of individual experience, activating it. After activating the long-term memory, a new electrical cipher arises - the semantic code. Now the word heard, passing through the stage of acoustic code, "comes to life" in the brain and causes other, already more complex mental processes [21]. In this way, modern neurophysiology confirms that any word is postponed in the subconscious, and then, mixing with information already in the unconscious early, involves the appropriate archetypes, incidentally forming patterns of behavior, and then passes into consciousness and is reflected in the affairs and actions of man.

The significance of the foregoing is that the fundamental predisposition of the human brain to moral judgments is rooted in its ability to create mental structures involved in evaluating oneself as another.

CONCLUSIONS

As a result of scientific research, the author developed an urbanistic concept, which is a new means of controlling the spiritual and physical state and behavior of a human society in the urban environment. This will allow to enter information into the memory of a person through myth settings, which in the future will shape humanistic behavior and human activity in the urban environment, its aesthetic tastes, spirituality and continuity to the nation's genetic memory. Humanistic influence on the human mental sphere is possible not only with its direct presence in this environment and contact with the elements of this environment, but also remotely, outside the habitat. What is determined by the distribution of the myth at the local, regional, territorial and world levels. This approach will connect more people's minds to the mentally-semiotic system of the urban environment by modeling the cognitive system of images (virtual reality) in people's minds and creating a sustainable motivation for visiting the urban environment and its structural elements that underlie tourism.

This approach will activate tourism, inflow of investments and will have a positive impact on the economy and culture of the country as a whole.

The introduction of manipulative practices into the urban concept of manipulative practices in the mechanism of programming human behavior in the urban environment with the help of myth will contribute to the harmonious spiritual development of man and the nation of the transforming society of the period of globalization.

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THE SUCCESSION ASPECTS IN DEVELOPING THE RESEARCH COMPETENCE IN PROSPECTIVE SCIENCE TEACHERS

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ABSTRACT

The article represents the research competence analysis in the context of its development under the educational process conditions. The succession aspects of developing the research competence within the 'student – teacher – pupil – student' cycle have been identified. The ways of implementation of the adaptation course from a school to a research type institution of higher education at out-of-school and informal educational facilities for effective research competence formation have been elucidated.

Keywords: succession in developing the research competence, adaptation course, science teacher.

PROBLEM STATEMENT

Dynamic social changes under the globalization conditions and accumulation of huge volumes of various information result in new needs of the labour market and the respective requirements to experts able to critical thinking and research-based decision-making. In response to the said challenges, the education system is becoming a provider of new competences, in particular, the research one, which is relevant not for scientific activities only but other areas as well. So, the established approaches towards learning and teaching require constant re-comprehension and updating, introduction of studies based on research. The article is aimed at identifying the main succession aspects in developing the research competence in prospective science teachers.

MAIN TEXT

The changes in the Ukrainian educational system have been preconditioned by the new Acts of Ukraine on Higher Education (2014) and on Education (2017) that introduce the innovations which correspond with the European education development trends and the New Ukrainian School National Comprehensive Secondary Education Reformation Policy Implementation Conception approved by the Cabinet of Ministers of Ukraine in 2017. The government has scheduled the participation of the Ukrainian pupils in PISA-2018 Programme for International Student Assessment which will demonstrate the real level of training in sciences.

In view of the above-defined issues, Trends 2015: Learning and Teaching in European Universities study appears to be relevant; in particular, it specifies that: "The workforce demands skills from college graduates that are more often acquired from informal learning experiences than in universities.

For higher education, this means, at the very least, that renewed vigilance is required in ensuring that students have the required critical thinking skills to evaluate and analyse the quality, relevance and validity of the information available on the Internet and elsewhere.

On the research side, the momentum toward 'open science' also suggests that researchers will require new skills and competences for their careers in and out of academia (data mining, management of large databases, etc.) which will have to be developed already at the undergraduate level. In summary, digital skills are becoming increasingly important in a wide variety of professions, including in the academe, requiring that higher education respond to this new need.

There have been systematic efforts to enhance teaching skills through a combination of optional (75%) and compulsory (40%) courses (with a further 13% and 15% of institutions, respectively, planning them). These courses are offered by a didactic or pedagogical development unit, which seem to be very frequent. Only 17% respond that they have no such unit; the bulk of institutions (60%) have a central unit; the remaining 33% have units located in faculties or departments that sometimes have an institution-wide brief.

The integration of transferable skills development into curricula and voluntary work seem to be promoted centrally. Institutions will need to examine carefully how they can support students in this evolving environment, contribute to

developing their skills in evaluating and analysing available information and transforming it into scientific understanding and knowledge, while also equipping them with the digital competences that will be required by their future professional environment.

In the area of learning and teaching, there is evidence of many initiatives to increase and widen participation, provide students with opportunities to develop transferable skills through community engagement and to include external stakeholders in core institutional activities.

The shift in students' interests is threatening the survival of some disciplines (such as some languages and some fields in the natural and life sciences, the social sciences and the humanities) or transforming them into 'professional' degrees (e.g. in the United Kingdom, some anthropology departments are included in tourism and plant biology in horticulture). So far, there has been no systematic European data collection on this topic, but it is emerging as an important issue to be addressed.

The increased share of project-based research funding has contributed to the growth in the number of researchers on fixed-term contracts; in parallel, recruitment freezes and contractual changes have increased the number of adjunct teachers while the salaries and pensions of civil servants – including those of academic and administrative staff – have been cut in a number of countries" [7].

On the other part, the New Ukrainian School National Comprehensive Secondary Education Reformation Policy Implementation Conception determines 10 key competences among which Basic Competences in Sciences and Technologies have been distinguished. The authors of the Conception have defined the essence of such competences as scientific comprehension of nature and advanced technologies as well as the ability to apply it to practical activities, the skill to apply the scientific method, to observe, to lay down hypotheses, to collect data, to carry out experiments, to analyse the results etc. [3; 6].

The scholars note that such contextual condition as appropriately developed researches and developments at educational institutions and broad introduction of learning through research is of especial importance for high-quality students' training under the need to train innovative research type experts [4].

V. Lugovyj, while developing the theoretical and methodological aspect of higher school teaching quality management, built taxonomy of generalized teaching methods by various criteria. Thus, by information learning efficiency, group and individual *research activities* have been attributed to highly-effective ones, and by information efficiency range, to the broad one. It should be noted that these methods are active from the point of view of student's passivity-activity, and according the EU Tuning project they rank 1st among 10 by frequency of application [5].

Application of such methods is first of all aimed at research competence development in higher school students. Thus, pupils, who studied in an educational environment with application of such methods at comprehensive secondary educational facilities and out-of-school and informal selective educational facilities, are better trained and feature higher level of development of the research competence and, subsequently, demonstrate higher academic progress at the next educational grades.

An important role in formation of the research competence in a pupil and with time in a teacher is played by the Scientific Department of the Junior Academy of Sciences of Ukraine. The main activity area of such institutions is research and experiment which presumes involvement of pupils in theoretical work, scientific research, experiments, construction and inventions in various areas of science and engineering as well as identification, development and support of talented young people, arrangement of conditions for their creative self-fulfilment, extension of their scientific outlook and arrangement of meaningful leisure. The results of the pupils' performed individual works are assessed at some stages (district, town, All-Ukrainian) of the All-Ukrainian Competitive Defence of Scientific Research Works of Members of the Junior Academy of Sciences of Ukraine as well as are presented at conferences and competitions of various levels.

Thus, for example, the structure of the Kyiv City Junior Academy of Sciences numbers 12 departments. The department of chemistry and biology incorporates the sections of chemistry, biochemistry, molecular biology, genetics and selection; general and human biology; microbiology; medicine; psychology and media-psychology.

Implementation of the 'education – science – innovations' triad at an institution of higher education is a pledge of its successful activity as a research university. A research university is a modern form of integration of higher education

and scientific research which allows constructing the studies as teacher and student's efficient creative work related to obtaining of socially valuable product at all the stages of the educational process, first in joint and then individual self-organized, first of all, research work. In the global practice, universities of this type receive the greatest support from governmental and local budgets which significantly predetermines their competitiveness [1].

In addition to the traditional functions (training of experts and conducting of fundamental researches), a research university actively transfers advanced technologies to industry and business, impacts on social practice, interacts and cooperates with various organizations, in particular, comprehensive secondary education facilities and out-of-school and informal selective facilities forming and developing the prospective students' potential in the area of natural sciences [1].

A striking example of a research institute is the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". For many years, the sections of the department of chemistry and biology, in particular, chemistry, and comprehensive secondary educational facilities (Kyiv City Selective Schools #137 and #159) have been cooperating with the Faculty of Chemical Engineering of this University, which is an experimental site for the adaptation course from a school to an institution of higher education.

For implementation of the adaptation course, a team of like-minded educators, based on the principles of voluntariness and interest, implements the teaching – upbringing – development three-stage process:

- development school (7 – 8 forms);
- growth school (9 – 10 forms);
- scientific research school (10 – 11 forms).

The above-specified stages envisage the following forms of arrangement and conducting of scientific research activities:

- *Individual*: learning activity arrangement in accordance with the individual learning path, research activity arrangement according to an individual curriculum, consulting. It ensures identification, development and improvement of pupils' individual abilities and formation of *general and special competences*.
- *Group*: activities in pairs, small groups, a team. It ensures formation of communicative competences in the course of solving problem cases, joint research activity, discussion of its results, formation of results and conclusions etc.

Important *educational principles* of such activities are involvement in the cause, partnership, correspondence of the obtained knowledge and competences with social needs, formation of ecologically oriented skills and habits in pupils, a precondition of which is non-pragmatic interaction with the environment.

Examples of implementation of the three-stage training process are preparation and defence of individual and group works at various stages of the All-Ukrainian Competitive Defence of Scientific Research Works of Members of the Junior Academy of Sciences of Ukraine, EcoOselia competition [2], in the framework of Vernadskyi's Progeny personality development project, Explore the Environment Together etc.

The authors of the above-specified projects were strongly focused on analysis of natural, industrial and potable waters, treatment methods and thrifty consumption. In the course of implementation of EcoOselia project information module, pupils of the metropolitan comprehensive secondary educational facilities learnt about tap water contamination sources, its treatment, related problems and the main ways of elimination of harmful germs in potable water, performed and presented interesting individual and group projects.

The Faculty of Chemical Engineering of the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" constantly attracts pupils to participation in open days, students' conferences, practices and arranges workplaces for pupils to perform scientific research works.

Implementation of many projects and high-quality performance of a great number of pupil's scientific research works could be impossible without cooperation with business. Examples of such interaction are cooperation with Ecosoft Scientific Production Association Limited Liability Company and Syngenta Limited Liability Company. The companies hold regular lessons and practices with young scientists, provide them with necessary reagents and equipment for water express analysis and arrange interesting and meaningful excursions.

CONCLUSIONS

The above-described allows stating that arrangement of scientific research activities at comprehensive secondary educational facilities and out-of-school selective educational facilities jointly with institutions of higher education and companies allows providing favourable grounds for formation of research competence in pupils who are prospective students of institutions of higher education, in particular, in the educational areas. A pupil in whom a basic level of research competence has been formed within a comprehensive secondary educational facility has significantly more chances to build a successful career both in higher education and research as a research student, a postgraduate student or a scientist and in the area of education as a highly-qualified instructor competent in effective training of the next generations of researchers at comprehensive secondary educational facilities and out-of-school selective educational facilities thus ensuring succession in developing the research competence within the certain cycle: student – teacher – pupil – student.

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RELATION BETWEEN PRONUNCIATION AND SPELLING

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ABSTRACT

The main aim of this article is to investigate the relationship between spelling and pronunciation in English language. Learning to spell correctly is perhaps as important as learning grammar, vocabulary and phonology. Errors in spelling always create a bad impression of the writer. For English learners, one of the reasons that are very important for learning English language is the relationship between spelling and pronunciation, because they are closely connected to each other. Both spelling and pronunciation have a complicated connection between them and the connection is often inconsistent. In other words, most of the English language errors of spelling and pronunciation are due to the lack of connection between them. One of the best strategies to remove these kinds of errors in English language is for the English learners to use the English dictionary and they should also learn phonetic transcription.

Keywords: spelling,pronunciation,connect,relation,language error,purpose of learning,phonemic representation.

INTRODUCTION

The purpose of this brief paper is to highlight the relationship between spelling and pronunciation in English language. We discuss briefly how the English language is the international language in the modern period.

English language is used as a world language around the globe; it is used as a language of international business, science and medicine. People of the world prefer to learn English in order to communicate with other people.

Problems with English Spelling and Pronunciation

English language has words which are sometimes spelt quite differently from the way they are pronounced. In other words, English spelling and English pronunciation are hostile and strangers to each other; hostile, because neither accepts without a quarrel the usage of the other; strangers, because very often one does not recognize the other. Note that the learning of English spelling and English pronunciation are as important as learning English grammar and vocabulary to language learners. We look at the history of English spelling in the English language.

Today, no one would deny that in spite of English advantages, the writing system of modern English contains a number of deviations in its phonemic representation. In fact, many of these can be explained historically. It is important to remember that the phonological system of every language changes, but writing systems do so very slowly. There are many so-called silent letters in modern English spelling which originated at a time when they actually did represent sound segments. For example, the letters "gh" in fight, light, and night date back to the old English sound segment [x], a voiceless fricative produced at the position of articulation of either [k] or [c]. Just as English has borrowed words, morphemes, and phonological features, so it has also borrowed spellings from other languages. For example, in the Middle English period, many literate people knew French as well as English. Many French words were borrowed into English during this period, so many in fact, that the language gradually became quite different from Old English spoken in earlier days and it is not surprising that some characteristics of French writing were extended to English. (Falk, 1978)

Pronunciation always plays the key role in the recognition of a word in speech. Learning correct pronunciation of English words is the most important factor in learning and teaching a foreign and second language. In other words, this is a big problem for English language learners, because the English language does not have fixed phonetic rules. An important point to note about the above sentence is that the English language has borrowed words and expressions extensively from many languages throughout its history. That, in fact, is the main reason for the pronunciation of those words which naturally sound different from the spelling, since they were borrowed from other languages into the English language.

Spelling contains the rules which govern the way letters are used to write the words of speech; a particular sequence of letters in a word. The history of English spelling begins with the origins of English in the British Isles 1500 years ago. This long history has led to many oddities of English spelling. They are factors that have caused the complexity between and spelling in English Language: first factor is that the pronunciation of English Language has changed over the last

500 years and second one is the thousands of words English has taken from other languages such as India, Latin, and Greek.

Spelling is a linguistic unit of language which refers to writing skill directly. The learning of writing is one of the most important skills that second language learners need to develop their ability to communicate ideas and information effectively in target language. Writing can be recognized as an integral part of the language learning process in ELT classroom.

CONCLUSION

Languages change throughout their existence - new words get introduced, old words drop out of use, meanings shift and pronunciation alter. English language is no exception. Every word in English has a history. There are certain words in English which do not have the same spelling or even the pronunciation as in the period of Anglo Saxons, 2000 years ago. The written form of the English Language represents its spoken form. In English Language, sometimes one sound is represented by one single letter, sometimes one sound is represented by more than one letter and sometimes more than one sound represent only one letter.

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VARIOUS APPROACHES TO THE STUDY OF PHRASEOLOGY AND THE PROBLEM OF CLASSIFICATION

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ABSTRACT

It would be interesting now to look at phraseological units from a different angle, namely; how are all treasures of the language approached by the linguistic science? Very miscellaneous nature of these units suggest the first course of action; they must be sorted out and arranged in certain classes which possess identical characteristics.

Keywords: phraseological unit, classification systems, scholars, different principles, idiom, word-group, a special study of idioms, phraseology, dictionaries of idiomatic phrases.

INTRODUCTION

It should be clear from the previous description that phraseological unit is a complex phenomenon with a number of important features, which can therefore be approached from different points of view. Hence, there exist a considerably number of different classification systems devised by different scholars and based on different principles.

The traditional and oldest principle for classifying phraseological units is based on their original content and might be alluded to as "thematic". The approach is widely used in numerous English and American guides to idiom, phrase books, etc. On this principle, idioms are classified according to their sources of origin, "source" referring the particular sphere of human activity, of life of nature, of natural phenomena, etc.

RESEARCH

The principle of classification is sometimes called "etymological". The term does not seem appropriate since we usually mean something different when we speak of the etymology of a word or word – groups; whether the word (or word-group) is native or borrowed, and if the latter, what is the source of borrowing. It is true that Smith makes a special study of idioms borrowed from other languages, but that is only relatively small part of his classification system.

Word-groups associated with the sea and the life of seamen are specially numerous in English vocabulary. Here are some examples.

To be all at the sea = to be unable to understand, to be in a late of ignorance or bewilderment about something.
To sink or swim = to fail or succeed.

Though, as has been said, direct associations with seafaring in all these idioms have been severed, distant memories of the sea romance and adventure still linger in some of them.

It is true, though that a foreigner is more apt to be struck by the colorfulness of the direct meaning of an idiom where a native speaker sees only its transferred meaning, the original associations being almost fully forgotten.

CONCLUSION

Two groups are distinguished: phraseological units and idioms. Phraseological units are neutral, non-metaphorical when compared to idioms: *get up, fall asleep, to take to drinking*. Idioms are metaphoric, stylistically colored: *to take the bull by the horns, to beat about the bush, to bark up the wrong tree*.

Phraseology would not constitute one of the language's main expressive resources. The thematic principle of classifying phraseological units has real merit but it does not take into consideration the linguistic characteristic features of the phraseological units.

Phraseological combinations are often called traditional because words are combined in their original meaning, but their combinations are different in different languages, e.g. *cash and carry* - (*self-service shop*), *in a big way* (*in great degree*) etc. It is usually impossible to account logically for the combination of particular words. It can be explained only on the basis of tradition, e.g. to deliver a lecture but not to read a lecture.

Many various lines of approach have been used, and yet the place of set expressions in the vocabulary and the boundaries of this level is one the great controversial issues of present – day linguistics.

English and American scholars treat set expression mostly as a problem of applied linguistics, they have concentrated their efforts on compiling dictionaries of idiomatic phrases. The approach is partly didactic, partly didactic, partly stylistic.

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LOGIC OF SOCIALLY-GEOGRAPHICAL PROCESS AND SYNERGETIC APPROACH TO REGION COMPETITIVENESS RESEARCH

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ABSTRACT

The article is devoted to the theoretical and methodological aspects of the complex social and geographical study of the region as an integral social and economic system in the process of transformations. The context of the region's research is its competitiveness and balance in systems of different rank. It is pointed out that it is necessary to take into account not only the logic of the socio-geographical process in the process of research, but also new methodological approaches, for example the synergetic approach. The synergetic approach can be useful in research in the aspect of forecasting the development of complex nonlinear systems, of which the region can be considered a variety. This contributes to a multidimensional study of region development factors, under the influence of modern social transformations. The nature of transformations is revealed through the processes of globalization, regionalization, socialization, clustering, innovation factors, investment processes and others. Their joint influence leads to create synergetic effects in the formation of balanced and competitive regions. The search for the paradigm of the modern development of a competitive region based on the strategy of sustainable development remains relevant in the countries of the world and in Ukraine.

Keywords: region, strategy of sustainable development, balanced development, competitiveness, synergetic effect, social transformations.

INTRODUCTION

In modern conditions, regional aspects of the state's development, along with the factor of its foreign economic integration, is one of the foundations on which all the mechanisms of its transition to a balanced development are based. Expansion of the regions' ability to independently carry out foreign economic activity, in particular, attracting foreign investments, is an additional factor that can significantly expand the potential possibilities of balanced state development. It is the regional level that allows identify and adjust the boundaries, the scale and direction of social and natural interaction in the state, based on the peculiarities of the development of its natural and social component. Balanced development at the local level is realized primarily in the system of balancing regions.

The need for modernization of regional socioeconomic systems is conditioned by the formation of special conditions of economic growth in the regions, taking into account the social challenges of the processes of economy globalization of the and the domination of the concepts of sustainable development. There is also a transformation of economic relations against the background of processes of environmentalization of regionalization in the socio-economic sphere, the institutional environment of the national space. This leads to the emergence of synergistic effects, which should become the basis for building a new non-linear paradigm of the region's development [5]. The importance of such an approach is explained by the need to ensure the sustainable development of the regions of the state.

Ensuring the effective use of the territorial resource and, at the same time, preserving the quality environment of human life are important conditions for the strategic development of individual regions and Ukraine as a whole. The problem of rational spatial combination in the triad "nature-population-economy" also solves the planning of the territory in the future. In the system of balanced development all levels - from global to local - are important. However, it is the regional level of research that is of particular importance both from the point of view of administrative influence and in the light of systemic mechanisms for ensuring the integrity of the region [3].

The analysis of recent publications confirms the lack of elaboration of the mentioned issues in both home and foreign scientific geographical schools. This is due to the rapid development of geosystems in the format of modern modern influences, which track is a new scientific task of social geographers. Accordingly, the scholarly works dealing with this problem are mainly economists, sociologists, philosophers. Ukrainian and foreign scientists have focused on different components of this multi-dimensional problem.

The scientific approaches of competitiveness are based on scientific results of the whole galaxy of prominent scientists from different fields of national and world science. In particular, in the field of social geography, regional economics, regional management, market research etc [2].

The basis of this study were theoretical works of such scholars as Ya.Bazyljuk, P.Belenky, V.Heiets, A.Hradov, M. Dolishniy, Ya.Zhalilo, D.Stechenko, L.Chernova, R.Shniper and others. The acquisition of classical foreign scientists was used as well - M. Porter, P. Krugman, M.Enright, H. Haken, J. Humphrey and others. The logic of socio-geographical processes and scientific approaches were partially taken from I. Gukalova, F. Zastavny, S. Zapototsky, S. Lisovsky, E. Marunyak, K. Mezentsev, L. Niemets, Y. Oliynyk, M. Pistun, A. Stepanenko, A. Topchieva and others. The research of the region competitiveness forms a number of problems that require scientific understanding of socio-geographical science. There is no profound research on the system sociogeographical studies of the transformation processes impact on the region competitiveness. The formation of competitive regions deserves depth study and this process should take into account the impact of market factors in terms of current transformation processes in transitive economy countries and Ukraine.

The purpose of this study is to identify socio-geographical logic and synergistic effects in the search for a correlation between the development of competitive regions based on the foundations of sustainable development and transformational processes in society.

MAIN MATERIAL

The competitiveness of the region is a relatively new concept in the scientific use and, therefore, determined by not absolutely established basic terminology, and underdeveloped methodological basis of research. The competitiveness of the region is found to have exclusively economic nature. However, it is at the present stage of social needs, under the influence of socio-economic transformation there is an urgent need for research of regional competitiveness by social geographers. As defined by the author in previous works, the competitiveness of the region is a multidimensional integrated concept that reveals the state, process and the result of the development of the territory as a socio-economic system with a certain potential capable of functioning effectively under the conditions of an investment-innovation system based on the use of the advantages of social and geographical factors, Taking into account the influence of economic and social laws, which is motivated by the needs to improve the quality of life of the population [2, 3].

Particular importance of this problem is for the development of socio-geographical research in the context of modern understanding of balanced development of the territory. At the present stage of development of society, the study of the rational organization of the environment - cities, rural settlements, industrial, agricultural, nature protection and other zones is an extremely important aspect.

The issue under investigation reminds us of an important global event that has affected further social development - the United Nations Conference on Environment and Development (Rio de Janeiro, 1992), which identified a strategy and adopted a series of documents, respectively. They contain the principled provisions for a new concept of human development in the future that has been defined as sustainable development. The basis of this concept was the understanding of the close relationship of economic and social problems of human development. Their solution is possible only on a comprehensive basis, taking into account the interests of the development of nature and society. There are numerous scientific discussions about the geographical nature and synergistic effects of this concept. Balanced development is seen as a paradigm, an irreversible principle in the study of territories of different hierarchical levels. Particular attention in the format of Ukrainian scientific interests and perspectives deserves sustainable (balanced) development of regions.

Synergetics as a new scientific picture of the world has become the subject of research very recently. The impetus for mastering the synergetic approach as a scientific thinking was the work of Professor Studgar University H. Haken and his associates on the issues of self-organization of complex systems, the Nobel Prize laureate I. Prigogine [1,7]. They proved the universality of the synergetic approach by eliminating the "classical" constraints of most economic processes associated with their equilibrium, linearity, closure, and so on. Currently, there is an intensification of scientific research in this direction. There is a need to theoretically investigate the essence, characteristic features and key manifestations of the synergetic effect that arises as a result of the functioning of a complex system of the region in the context of its sustainable development. Set the logic of transition to a model of balanced development from the plane of the theory to the plane of reality.

One of the key principles of the synergetic effect is the presence of self-organization processes in the systems, which are logical for all phenomena and events. Under the self-organization processes we mean spontaneous ordering, the

emergence and evolution of structures in open nonlinear environments (systems). An important effect is the ordering of the system due to its components. Under it, self-executing regulatory processes are considered in complex systems, including regional ones [5].

As you know, in the balanced development system all levels - from global to local - are important. Everyone is the obligatory link, without which it is impossible to implement a holistic development model (Fig 1).

At the same time, the regional level is objectively allocated, which is due to the following reasons: 1) in today's globalization, governments have less opportunity to manage their country's economic development processes. More important are the actions related to the state's ability to manage regional development; 2) the regional level is a link that combines national and local levels; 3) the regional level provides the opportunity to most accurately determine and correct the boundaries, scales and directions of social and natural interaction on the territory of the state; 4) balanced development at the local level is realized, first of all, in the system of ensuring the competitive development of regions. It is necessary to take into account the necessity of multi-faceted coordination of the goals of the development of the region with the tasks of functioning of systems of another level and scale. For example, the national space as a whole, programs for the development of separate territories and types of economic activity, the sphere of interests of commercial organizations.

From the standpoint of the synergetic approach, which is based on the self-organization of large and complexly organized systems, regional entities, it is emphasized that these systems can't be rigidly imposed on the paths of their development, it is only necessary to identify their tendencies [5,7]. Understand socio-economic activity in the region as an open, unstable, integrity that has all the determinants for self-organization and self-development. One can't overlook the need to understand the sustainable development of the region under the influence of transformations.

The deepening of the scientific picture of the world, its conceptual transformation, the contradictions of the theoretical and applied nature, and the logic of the socio-geographical process are developing. There are processes of deepening the scientific and technological revolution, political and administrative changes, structural transformations in the world economy and individual national and regional economies. The transformational processes that are observed in society affect the political, economic, social, administrative, and other parts of the regional system and are determined primarily by the impact of globalization. Globalization is a process of territorial and sectoral restructuring of national economies, characterized by the formation of a system of various-vector relations of global, regional, local levels. Their qualitative and quantitative parameters determine the dynamic changes of the world economy in the direction of forming a holistic model of development [1]. Social development determines the special importance of the analysis and evaluation of territorial differentiation, promotes identification of the features and trends of the development of regions of Ukraine in the context of globalization processes. The main factors of regional development in the globalization are:

- 1) strengthening the competitiveness of the regions, which will ensure further intensification of the economy of regions, the state;
- 2) strengthening the integration of Ukraine's economy into the world;
- 3) diversification of the geopolitical situation;
- 4) diversification of border areas with a certain political and social instability, which may pose a threat to state security.

Neighborhood with fast-growing states for contact regions also brings not only advantages but also problems related to the competitiveness of local production, cross-border migration, smuggling prevention, natural resource protection, etc.

The challenges of globalization clearly show the second regularity of world development - regionalization. At the national level, regionalization serves as an important precondition for ensuring the country's economic security. It contributes to the implementation of the generally accepted concept of sustainable socio-economic development and national interests. Regionalization manifests it self in the action of regional strategies of socio-economic development. Regionalization refers to the right of each region to economic, independence, own model of innovation growth. It based on national goals, should be guided by the interests, capabilities and resources of the region. This logic is justified right now due to the growing interest of territorial communities in balancing regional models (Fig 2).

It is important to focus regional development on mitigating territorial and industrial disproportions, on innovative economic growth. It is necessary to create favorable conditions for population living and doing business equal in all regions. Necessary harmonization of interests "man-power", "population-resources", "region-state." Strategic demand is now the regional economic and financial policy. The main priorities of regional economic policy in Ukraine can be: 1) deep technological reform of the economy with the development of high-tech industries in the regions; 2) the actions of

private capital in the regions to strengthen the investment activity of domestic producers and improve the investment climate; 3) mitigation of significant interregional disproportions of the main parameters of socio-economic life of the regions; 4) ensuring innovation economic growth and quality of life of the population; 5) intensification of the use of the integral potential of competitiveness with the dynamic growth of its innovative, informational, and intellectual components; 6) growth of business, financial, tax potential; 7) raising the level of socio-economic development and competitiveness of the regions; 8) the formation in the regions of new industries and territorial forms of organization of the economy - clusters, technology parks, consulting firms, investment agencies, agroholdings. Such priorities will contribute to solving socially important social, environmental, cultural and educational problems of the regions of Ukraine.

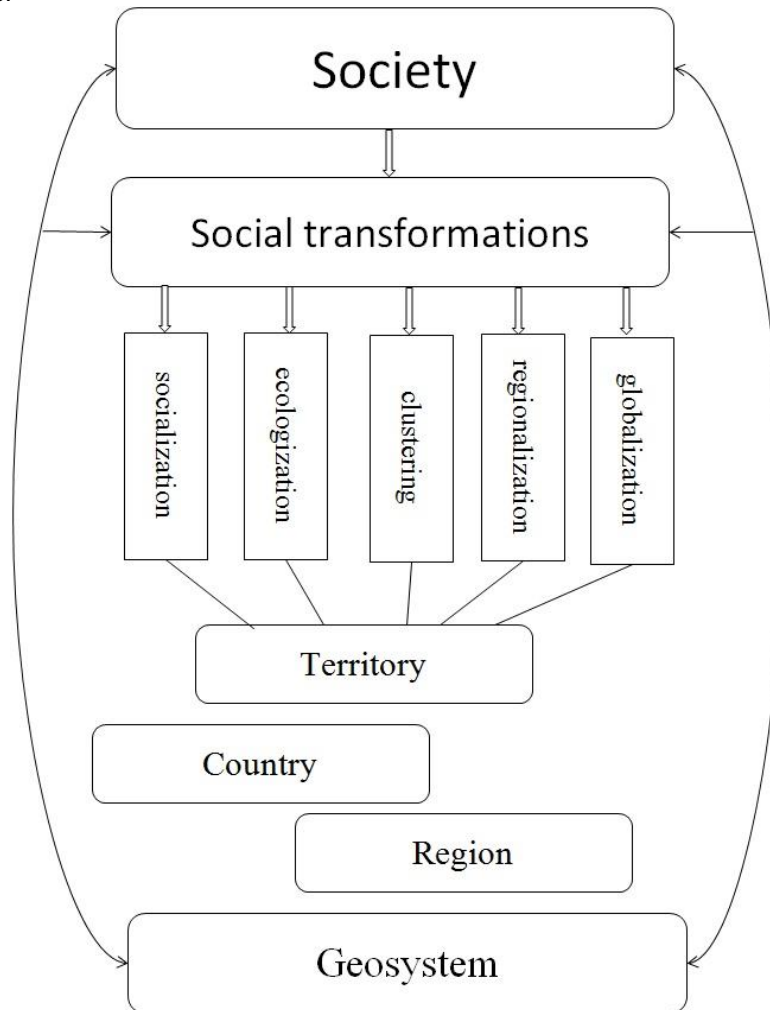


Fig. 1 Components of the transformation process in the development of the competitiveness of the region

A priority area for raising competitiveness at the national and regional levels is to ensure the transition from the use of static comparative advantages to the dynamic benefits of a breakthrough in technology and information. The following factors, such as scientific level of production, technological level of capital, highly skilled labor force, resource saving and innovative management style, become the most important factors influencing the competitiveness of the national and regional economy.

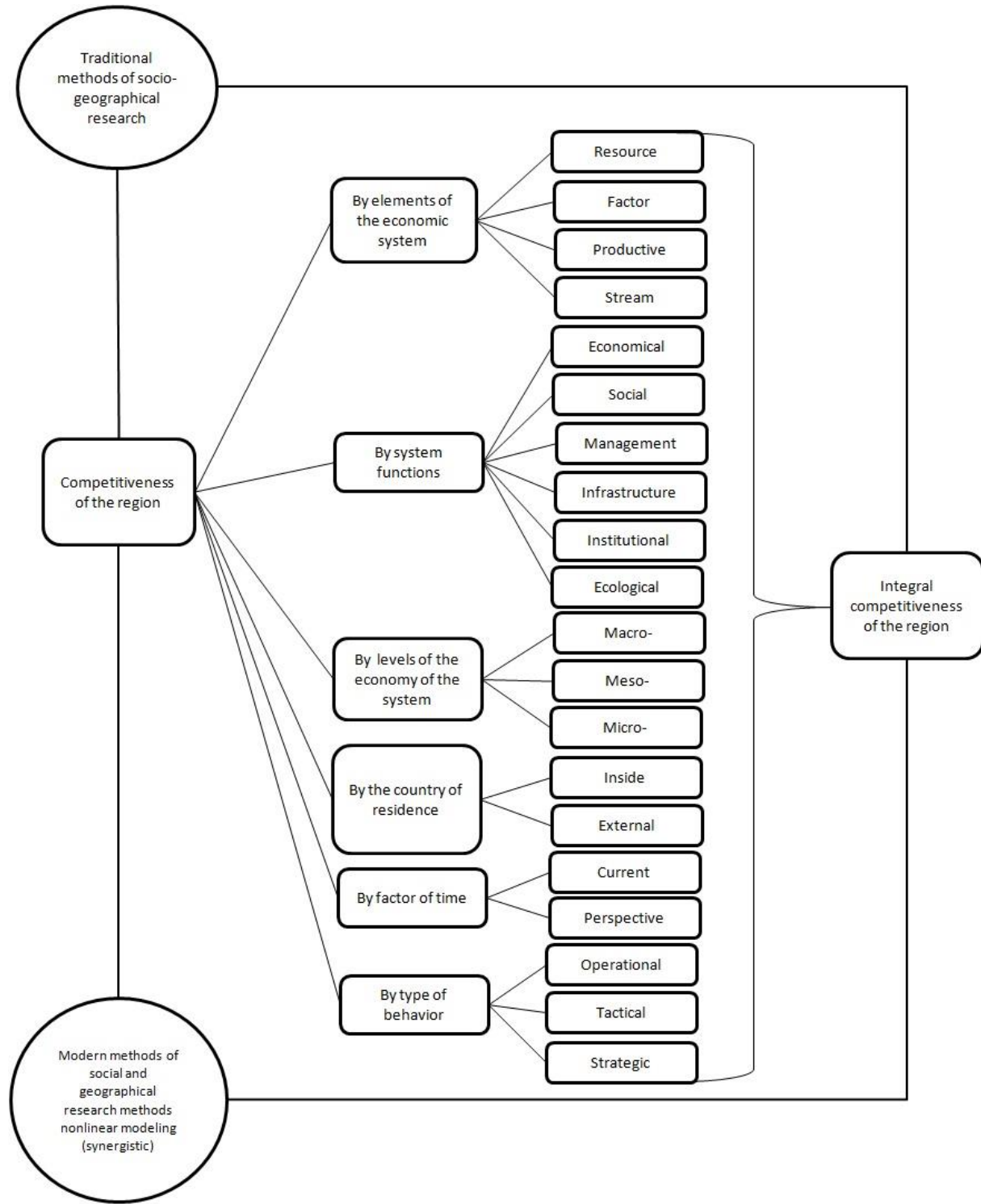


Fig. 2 Multidimensional research on the competitiveness of the region (Developed by the author)

CONCLUSIONS

1. Manifestations of the synergetic effect of sustainable development of the region serve as a summary of the useful effect of socio-geographical factors as a result of their effective combination.
2. Ensuring sustainable development of the regions is a difficult task, as the system of each region is characterized by openness, non-linearity, heterogeneity of factors of influence, the ability of the system to self-organization. It is thanks to these features that it is possible to obtain positive synergistic effects and increase the competitive advantages of the region.
3. Despite the indisputable importance of state policy, it should be noted that the main actions must be taken at the regional level. It is here that the main sources of competitive advantage are formed. The level of socio-economic development depends on the state of competitiveness, which is due to the efforts of regional business entities and authorities. This, to some extent, explains the uneven development of the country's regions.
4. The system approach to the development of regions as a whole organism will allow the most efficient use and development of the innovative potential of the region. Innovative development of the regions should be considered in the context of the principles of sustainable regional development. The policy of innovation development of the regions should be an integral part of the regional economic policy.
5. The development of innovative infrastructure is a critical prerequisite for the effectiveness of innovation development of the regions. One of the new and progressive forms is the creation of technological parks and technopolises for the development of advanced scientific and technical ideas and their integrated implementation into production.
6. A rational direction in the policy of developing "depressed" territories should be the implementation of innovative projects in sectors of economy with a rapid turnover of capital. Projects should be characterized by high budget efficiency and rational use of local resources. A promising area of activity is the formation of regional innovation clusters - complexes of enterprises based on the territorial concentration of networks of specialized suppliers, major producers and consumers connected by the technological chain.
7. An important component of the investment strategy of the region is the provision of stable sources of venture (risk) financing. Venture capital stimulates the process of economic growth of regional production systems. Creating favorable conditions for the effective "synergy" of new scientific knowledge, financial technologies and management methods.
8. The main sources of regional competitive advantages should be considered: the regional environment, the presence of integrated economic structures in the region, regional social capital, close cooperation of business and government at the local level.
9. Further research on this topic requires the analysis and development of practical ways to introduce a mechanism for improving the competitiveness of the region. At the same time, positive synergetic effects from the influence of social transformations should be taken into account.

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METHODOLOGICAL PRINCIPLES OF MANAGEMENT AND ENHANCEMENT OF COMPETITIVENESS OF BUILDING ENTERPRISES IN MODERN CONDITIONS

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ABSTRACT

The theoretical basis of the basic aspects of the concept of improving the competitiveness of Ukrainian enterprises of the construction industry in modern conditions and identify ways of improving the development of enterprises in the context of globalization and competition. It is proved that improving the competitiveness of the company is a prerequisite for the country's integration into the global economy. It is proved that, depending on the influence of the external environment, internal factors, the strategic objectives, the individual characteristics of the enterprise, the concept of increasing competitiveness can include a plurality of different elements: the organizational and managerial, technological, marketing, financial, investment. On the basis of the study concluded that the competitiveness is based on quality, speed of decision making, technical excellence and differentiation of a product or service.

Keywords: competition, construction companies, competitiveness

PROBLEM STATEMENT

In today's conditions of economic development it is clear that increasing the competitiveness of the enterprise is a prerequisite for the country's integration into the global economy. The development of the concept of a comprehensive approach to improving the competitiveness of the enterprise is not easy. Its solution can not be the same even for two very similar companies operating in the same market and setting identical goals. Therefore, depending on the influence of the external environment, internal factors, strategic objectives, individual characteristics of the enterprise, the concept of increasing competitiveness can include many different elements: organizational and managerial, technological, marketing, financial, investment. Competitiveness is based on quality, speed of decision making, technical superiority and product or service differentiation.

The main determinant of competitiveness is the increase in overall productivity. The nature of production and its organization, as well as changes in the market situation, are changing, requires new conceptions of productivity. Certainly, the market itself, that is, the market environment in which the enterprise functions, and its features, make a huge impact on the increase of the competitiveness of the enterprise [1].

Unfortunately, there is currently no single general definition of the formation and functioning of the enterprise competitiveness management system. This situation is explained by the high complexity of the investigated category, as well as the difficulty of using empirical methods of scientific research. Economic science has not yet accumulated sufficient knowledge base to form a comprehensive theory of enterprise competitiveness management, which is why scientific research and development of this area are extremely relevant.

The driving force behind increasing the competitiveness of construction enterprises is the development of a methodology for managing its supply processes based on the use of its own resources, the use of effective technologies, new adapted structures and forms of management of construction enterprises, and the improvement of the quality of construction products, which in the complex of interactions are considered as technological changes. The theoretical aspects of the formation and management of the competitiveness of various sectors of the economy are investigated in the works of such foreign scientists as: G. Azgoldov, R. Akoff, I. Ansoff, G. Bagiev, B. Berman, K. Bowmen, R. Brailli, J. Brighhem, V. Banks, T. Galin, E. Golubkov, P. Gohan, A. Demb, E. Deming, R. Johnson, H. Dinz, P. Drucker, R. Kaplan, F. Kotler, S. Myers, M. Meskon, M. Porter, M. Robson, F. Taylor, A. Fayol, R. Fathutdinov, M. Hummer, F. Hedory, J.Champi, A.Judanov and others.

Domestic scientists have made a significant contribution to improving the methods of forming the components of the competitiveness of the country, regions, industries and individual enterprises: O. Amosha, V. Andrienko, V. Anin,

S. Aptekar, M. Belopolskii, O. Bondar, I. Buleev, B. Borykinsky, V. Voloshin, V. Gerasimchuk, M. Gerasimchuk, V. Grinev, A. Dragan, M. Yermoshenko, A. Zapunyna, A. Kasich, A. Kendiukhov, E. Krykavsky, P. Kulikov, R. Larina, O. Momot, V. Otenko, I. Otenko, P. Pererva, J. Petrovich, G. Ryzhakova, A. Starostina, F. Khmil, M. Chumachenko, V. Shinkarenko, N. Shpak and others.

MAIN MATERIAL OF THE RESEARCH

The results of the analysis and generalization of the world's achievements in the formation of theoretical and methodological positions of the formation of the system of competitiveness management indicate that the methodology of forming a system for managing the competitiveness of enterprises of such an important industry, as construction needs further development.

To exit the construction company on the global market requires a number of certain conditions. In the context of global competition, the corporate strategy needs to be revised and it needs to include a response to changing the competitive environment at the international level. The factors enhancing the competitiveness of the enterprise, taking into account the features of the modern market, are [3,5]:

1) Implementation of the innovation policy of the enterprise, which determines the possibility of the enterprise to compete not only on the domestic, but also on foreign markets. The purpose of innovation activities determines its focus on the creation of production of new or non-market goods and services. Modern innovation policy is a set of scientific, technical, industrial, managerial, financial and other measures aimed at the production and promotion of new or improved products on the market. As we have already been identified in the previous sections, innovation is not just an innovation, it is a modern technical and economic process, which, thanks to the use of new ideas and inventions, leads to the creation of the best in their qualities of products, technologies that help the firm to take a competitive position. on the market. The main point of innovation is the improvement of production, methods of its distribution and production. Innovation is based on qualitatively new ideas and technologies. It is necessary to understand that with the growth of scientific and technological progress, growing and changing needs, the consumer puts forward increasingly complex requirements for the market of goods and services. The task of innovation policy is to meet these needs. It is important for an enterprise to anticipate innovative opportunities in advance, to manage the innovation cycle in a complex manner, ensuring its competitiveness and long-term effectiveness.

2) Availability of skilled labor resources, relevant to the requirements of the modern labor market. Labor resources are one of the most important components of enterprise activity and the most important factor of increasing competitiveness in the global economy. The experience of foreign companies suggests strengthening the role of management of labor resources in the system of factors that ensure the competitiveness of the construction company. According to modern management concepts, people are one of the most important economic resources of an enterprise that affects its income, competitiveness and development.

3) Quality management system at the enterprise. Today, when a consumer can choose from a huge number of offered goods and services, one of the most important determinants of the existence and development of an enterprise on the market is the quality of the products or services they offer. If the company seeks to gain a competitive position in the market, then its products must meet international quality standards and must have a certificate of compliance with the quality system to the international standard ISO 9001. Compliance of the quality management system at the enterprise with the international standard ISO 9001 involves changing the organizational structure of the enterprise, rebuilding all stages production cycle: from product design to sales. An enterprise must certify all production as a whole and lead to "certification of the quality system".

4) Continuous improvement of products, which is realized on the domestic market of construction products and expansion of their activities in the international market. These include: ensuring the priority of products, changing the quality of goods and its technical parameters in order to meet the needs and specific demands of the consumer, identifying the advantages of the goods in comparison with the substitutes, defining the defects of the goods - analogues that let out competitors, studying the methods of competitors to improve similar products, definition and use of price factors for increasing the competitiveness of products, new priority areas of product use, product differentiation, providing on-line CHO sustainable benefits to consumers, provided that certain interchangeable goods directly impact on consumers by limiting the appearance on the market of new products, conducting advertising, providing cash or credit.

CONCLUSIONS

Thus, we can say that in the conditions of deep structural changes in the international and national construction market, the main task of the company is to find its niche in the harsh conditions of competition in the market. For this, the company operating in the global economy should take into account the features of the modern market. The following factors in increasing the competitiveness of the enterprise are the first place in the conditions of the global economy: the implementation of innovation policy, which determines the ability of the company to compete not only on the domestic but also on foreign markets; the availability of skilled labor resources that meet the requirements of the international labor market; Flexible quality management system at the enterprise; Continuous improvement of domestic producers' products, which is realized on the domestic market and expanded their activities in the international market. An enterprise whose strategy is defined as a global one must also take into account the cultural, social, political, technological, environmental and legal characteristics of the individual country's market.

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METHODICAL PRINCIPLES OF FORMING A SYSTEM OF RISK MANAGEMENT OF TELECOMMUNICATION ENTERPRISES

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ABSTRACT

The article analyzes the main aspects of the formation of a risk management system for enterprises, defines the functions and structure of the risk management department, substantiates the need to form an effective approach to risk assessment, which should include not only the definition of risks, but also the assessment of the impact of risks on the overall activity of enterprises. Recommendations on the introduction of a risk management system in the activities of telecommunication enterprises have been developed.

Keywords: risks, management, valuation, telecommunication enterprises

PROBLEM STATEMENT

In today's conditions, the issues of creating an effective system of risk management of an industrial enterprise are relevant. The analysis of theoretical sources and practical developments in the field of risk management allows us to formulate a risk management algorithm that can be used by telecommunication enterprises in modern conditions:

MAIN MATERIAL OF THE RESEARCH

The first unit of enterprise risk management system defines the purpose of risk management. The main purpose of risk management is to prevent bankruptcy of the enterprise and to provide profitable activities at the least losses. In this regard, the issue of the formation of an effective system of economic risk management, which should ensure the economic stability of the enterprise in unstable crisis conditions.

The second block, "Determining the risks available in the enterprise", is to carry out work on identifying existing risks. Identification of existing risks includes identifying factors that influence the results of an enterprise's activity, identifying risks through the use of risk classification.

The third block contains the construction of the organizational structure of the enterprise. Risk management in connection with their number and high degree of influence on the results of the enterprise should be carried out by a separate unit. This may be a risk management service (department, department, sector, group) depending on the size of the enterprise.

The fourth block, "Analysis of the peculiarities of the manifestation of each risk", is that the risk management service conducts a detailed risk analysis. To achieve this goal, the specialists of this service must use the existing system of managerial accounting, information software and process a significant amount of information to make managerial decisions.

The fifth block, "Developing a Management Decision on Risk Management Methods", is that risk management services specialists develop an optimal managerial solution that can overcome the risks. The most important task of a specialist in risk management is the selection of risk mitigation measures (the choice of managerial decision) and the provision of this information to the management of the enterprise.

In a context of tight cost savings, increased competition between enterprises in the telecommunications market, within the framework of strategic planning by enterprises, in our view, it is advisable to create a risk management group within the controlling department, which in turn will be formed on the basis of the existing department of finance and economic planning.

The main tasks of the risk management service are:

- interaction with the divisions of the enterprise for the purpose of collecting information characterizing the risk factors in the activity of the enterprise;

- processing and analysis of information (risk analysis);
- development of measures on enterprise risk management (development of management decision).

Establishing an acceptable level of risk for a given period of time, for a trial solution considered, etc., and evaluating (approving) the acceptability of the achieved level of risk for this trial decision is the prerogative of the management of the enterprise or the administrator of the subsystem concerned, which has prepared the proposal. The role of the risk management service in this case is to ensure that control over compliance with the established values of an acceptable level of risk.

The management of an enterprise generally plays a key role in addressing risk management issues, as it approves risk reduction programs, decides to start their implementation in critical situations, accepts or rejects proposed trial solutions together with anti-risk programs. I must say that the immediate implementation of risk management measures often contradicts the activities of the main production and management departments of the enterprise, worsening their reporting rates, because it requires costs that do not bring fast income.

It is therefore important that the final anti-risk decisions are made at the highest level of management so that the global goals set by the enterprise, connected with the achievement of stable work, improvement of the financial situation and the growth of economic activity, are not blocked by intermediate, "parochial" goals of separate units and their managers.

The risk management service is a logical complement to the traditionally independent functional subsystems of the enterprise and is at one managerial level with them. It allows to coordinate activities of functional divisions of the enterprise through the responsible executors.

The purpose of the Risk Management Service is to ensure the successful operation of an enterprise in a risk-taking environment.

To construct and successfully and efficiently operate the risk management service, we will define its main tasks:

- monitoring of the enterprise and the environment in which it operates;
- Identification of available and probable risks;
- planning anti-rhetoric measures;
- methodical provision of anti-risk measures;
- reduction of financial losses associated with risks.

For this purpose, the specialists of the service need:

- maintain a permanent connection with the management of the enterprise and other subsystems of enterprise management;
- periodically carry out work on the control of the risk of operation of the enterprise;
- determine the composition of the next cycle of control and management (choice of type of risk analysis, methods, methods of fixing results, etc.);

Establishing an acceptable level of risk for a specific period or for a specific decision, as well as evaluating (approving) the acceptability of the achieved level of risk for a particular decision, is the prerogative of the management of the enterprise. The role of the service is to provide control over the observance of the established values of an acceptable level of risk. The Risk Management Service, which, in order to fulfill its main functions, involves, as appropriate, all existing functional departments, in view of their direct relevance to the emergence and development of measures to minimize those or other risks. Thus, the solution to the problem of minimizing risks involves the entire management of the enterprise in organizing the management role of the central service, headed by experts in the field of risk assessment and management.

The operation of the risk management mechanism should be based on an integrated approach, that is, it should be:

- Constancy and continuity of the risk management process;
- top management - coordinating center;
- the interest of each employee;
- Involvement of all departments and services in the risk management process;
- Continuous improvement of the complex of methods of risk management.

The main task to be addressed by the risk management service is to organize, coordinate and implement the risk management process, which is based on the development and implementation of a risk management program. Thus, the formation and implementation of a risk management program is a central task of the risk management system.

The Risk Management Program is an enterprise-wide system for planning, providing and organizing activities necessary to minimize losses (losses) caused by accidental events.

The risk management program is based on the solution of such tasks as:

- Identification of possible risks and their impact on the activities of the company;
- definition of principles and methods of risk management;
- assessment of financial losses associated with risks.

The result of the development and implementation of the risk management program should be the provision of such risk management, in which the main activities of the company will be carried out with high stability and reliability from internal and external risks.

Each of the methods of risk management has the features of application, advantages and disadvantages, and their various combinations ensure the protection of business from the negative effects of risks. The universal method of indemnification for materialization of risks is insurance. Moreover, insurance enables at all phases of the life cycle of the company not only to compensate the insurer for sudden and unforeseen losses, but also to protect the investment.

At this time, banks and other lending organizations increasingly put forward the requirements of project risk insurance to best protect their financial resources.

When using insurance it is very important to take into account the types of risks that it is inappropriate to insure:

- acceptable risks, which are reimbursed by self-insurance in the form of a reservation;
- speculative risks that are offset by diversification;
- risks that can not be completely identified (from the economic point of view);
- Unmanaged risks;
- heavy risks due to financial and organizational problems of insufficient development of insurance risk management;
- rare risks;
- Large, systematic risks that are offset by a favorable climate through state regulation;
- catastrophic risks that are reimbursed by the state or semi-state structures;
- new risks that have emerged in the process of doing business;
- political, military, terrorist, social and environmental risks, etc.

Thus, for some types of insurance risks, as an entrepreneurial risk management method, it is ineffective. Therefore, it is necessary at the organization level to develop and implement various methods for minimizing business risks.

In this regard, the risk management program should contain the following provisions:

- list of risks from which the organization avoids;
- a list of risks that the organization reduces;
- list of risks that the organization transmits;
- list of risks that the organization accepts;
- management methods applied to accepted risks;
- management methods applied to transferred risks;
- plan of preventive measures with allocation of appropriate risks;
- cost estimation related to the implementation of the chosen management method (for all types of risks);
- the magnitude of the effect from the introduction of the chosen management method (for all risks associated with the implementation of the chosen management method);
- distribution of losses (the value of the probability of occurrence of losses and the possible amount of losses) to the implementation of the recommended measures and after their implementation;
- a list of measures and methods to cover possible losses of the organization.

CONCLUSIONS

A risk management program can contain more detailed information about the most dangerous and probable risks, for example, for risks that can lead to bankruptcy, it is possible to develop a sequence of actions to minimize this type of risk.

The developed risk management program should contain complete information about the organization's risk and management methods, the plan of implemented preventive measures, as well as a list of measures aimed at covering possible losses of the firm. Accurate and complete implementation of the risk management program will mean a reduction in the total amount of possible losses for the organization, therefore, in general, will contribute to its stable financial position and effective development.

The risk management service should regularly review the risk management program to meet the needs of the organization and also take into account ever-changing operating conditions.

Formation and implementation of the risk management program is aimed at developing measures to minimize the risks of the organization, while in a competitive environment, ensuring the competitiveness of the organization can be considered as a means of minimizing business risks. Because the success of the market, financial stability and further development of the organization depends on increasing the competitiveness and reliability of the organization.

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POLICE-ONLINE – SUCCESSFUL PROJECT

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ABSTRACT

The aim of this article is to generalize our German colleagues' experience on creating an educational platform for police officers.

The introduction of educational module POLICE-ONLINE "integrated educational management system" in the federal Land Reinland – Phalz is being completed. Starting from the second half of 2009, all refreshing courses are organized according to this system. It has become the motivating factor for writing this article.

At first, the project POLICE-ONLINE itself is introduced. Then, the current state of permanently growing national cooperation and its spreading all over Europe is presented.

The article considers the issues of "integrated educational management system" functioning. POLICE-ONLINE at present features a number of modules, which according to their contents and functions, consider requirements to police officers' training.

The main idea of the article is the discussion around general and specific opportunities of ELearning and blended learning, as well as their advantages and possible risks. At the end of the article the conclusion is made about knowledge and skills obtained due to the project. It should be mentioned, that POLICE-ONLINE project was awarded with «European ELearning - Award». In the category "ELearning for professional purposes - the highest efficiency" the top-notch policemen were identified. In their eulogy the judges emphasized the efficiency of the innovational project POLICE-ONLINE especially for work with staff and for organizational system development.

Keywords: E-Learning, blended learning, education, educational management

1. INTRODUCTION

The Federal Republic of Germany is the federal state. Homeland security issues are within the competence of federal Lands. The police forces of federal Lands cooperate with each other, although they work in parallel. The police activities are influenced both by alterations in federal laws and their practical application. Existing of such alterations means that associate professors in higher educational institutions, teachers in special educational institutions are reconsidering their teaching concepts, renewing their teaching programs, designing new studying forms, and transfer their knowledge at different workshops. As a rule, such events are conducted simultaneously in different cities: in Hamburg, Dusseldorf, Erfurt, Mainz and Munich. However, not only above mentioned cities, but also Baden-Baden, Württemberg, Hessen, Reinland – Phalz, Berlin, Saarland, Nordrein – Westfalen have united under the auspices of the integrated project POLICE-ONLINE. Together, they are joining their endeavors to introduce a modern and efficient educational system.

1.1. What is POLICE-ONLINE project?

In 1998 POLICE-ONLINE project was launched in PPP form (Public-Private-Partnership) as a strategic method based on cooperation between the federal Land Baden – Württemberg and German Telekom. Within this cooperation POLICE-ONLINE project has been developed as a single successful project. While earlier the main stress was exclusively made on an educational management sector, today we are considering four major functions:

1. Integrated educational and training management.
2. Single intranet – decision.
3. Internet and electronic applications.
4. Documentary and procedural management.

As before, educational management remains the coacher for the POLICE-ONLINE project. At present, five federal lands are participating in the project for the further development of educational management, where the police partners are working together with their partners from economics. Other federal Lands are indicating their wish to participate in this project.

1.2. Cooperation

POLICE-ONLINE project can be considered as a national project on cooperation. Joint work saves resources, brings together forces and increases productivity. As a result, all participants win.

Technology, experience, methods, contents - all this is shared and disposed. Cooperative mutual influence results in sufficient expenses minimizing and implementation improving. Thanks to this success, the POLICE-ONLINE project is now reaching the new dimension in cooperation: "POLICE-ONLINE is striding across Europe".

To resist efficiently international and transnational crime, the cooperation between several central and eastern European countries has been developed under the leadership of Central – European Police Academy (MEPA).

It turned out that in such cooperation modern and efficient communication between participants is possible only through the development of the united multifunctional intranet – platform. On the base of the electronic platform the POLICE-ONLINE project was created.

Within one project supported by the European Union, so – called MEPA – portal was designed.

Together with informational and other communicational opportunities this portal features specially designed applications for ELearning. These educational electronic features contribute in knowledge transfer for thousands of policemen from eight countries – members of the project.

2. POLICE-ONLINE - integrated educational management system.

This system mainly consists of 2 key areas:

- Educational management, directed at administration tasks;
- Training management, directed at knowledge transfer and its application.

In the recent past cooperation dealt very intensively with the issue how to integrate police firearms training into POLICE-ONLINE in order to correspond the planning, conducting and controlling firearms training requirements based on PDV 211.

It turned out quickly that in different federal Lands similar requirements prevail. It fit into a single design of a special concept, which had to be designed and completed by the autumn, 2009. After the full implementation in Rheinland – Phalz, about 20000 firearms trainings were organized annually and the results were documented respectively. This example clarifies the possibilities of synergy achieved, as well as labor division and cost reduction

2.1 Educational management

There is a component in educational management, which basic direction is planning and giving educational opportunities, as well as managing participants. What at first seems simple, turns out to be underestimated complexity:

- Land police schools and other educational institutions offer 100 training courses annually which include dozens of thousands places to attend.
- dates and venues of workshops can, as a rule, be used by all employees of a corresponding organization.
- when a training offer is announced almost all federal Land police stations process professionally participants' wishes. Herewith, individual educational needs are taken into account, target groups levels are aligned, and functionality of the service is provided, if necessary.
- such an approach provides the further growth, if systemic using of training programs achieved through cooperation can also be applied to a bachelor degree.

Key technological processes are supported by a POLICE-ONLINE portal. Such application considers real requirements to policemen which stemmed from long – term improving of the police activities.

It is believed that POLICE-ONLINE covers not only the basic tasks range of the central police educational institution, but also enables all police agencies to plan their own events, inner refreshing courses, as well as display and manage data.

Due to convenient search and evaluation tools, the police organization has the system corresponding to strategic and operational police tasks.

Particular application**Step 1:**

All police officers can enroll without an additional registration from any computer, which is online and via police intranet – access for this educational portal.

All important educational opportunities are immediately updated and personalized. You can see at once the state in which your application form is.

You can also access current educational activities via a personal page, whether we are talking about an electronic educational application or professional development in the form of personal involvement.

All police officers can access their pages any time on the educational portal.

Step 2:

The choice of the event

If there is a personal need for a refreshing course, a police officer chooses workshops from the list - timing, venues and job profiles, and informs about their desire to improve their skills online.

Before it, policemen had an opportunity to improve their skills after talking with a boss and according to a schedule.

Initially, registration is processed by an authorized person in charge, which means checking and evaluating. In affirmative case participation of a police officer is registered. So, the educational institution receives applications online, taking into account a current situation. At the same time, other administration processes are performed via the system. The access is fulfilled freely via the personal page in electronic educational offers but through the person in charge of a service instance.

Team registration

If a current and mandatory refreshing course for big target groups should be organized, i.e. due to law alterations, potential participants can be registered and places for them can be booked online via authorized people in charge. There are convenient options for this in order to filter chosen groups according to a particular service instance, and refer them to specific tasks. Thus, the chosen police officers will be notified by e-mail after enrolling for certain refreshing courses and be able to follow the link and see their application on their personal page.

Step 3: Completion of educational activities

After taking part in educational activities, the system confirms participating in it. After that, process becomes a personal educational file. If educational activities were offered within a full - time event, an implementer provides a certificate of participation, which is the part of a formal personal file. At the same time, the system confirms actual participation in educational activities. This step is necessary because timely refusals to participate or replacements due to a participant illness or certain directives should be taken into account.

2.2 Educational management – ELearning and blended learning

The profession of a policeman has a specific feature to be constantly under public scrutiny. That is why, all policemen should constantly improve their skills. For this reason, for the police current and comprehensive information, basic knowledge and directives are absolutely obligatory. The police will permanently deal with the necessity to improve their skills, which will be implemented on time. Innovative developments in modern information and communication technologies, as well as the ever-present extremist threats are the examples of it.

Traditional educational methods are limited by their opportunities regarding the required time of implementation or based on duration or quality assurance the experience of multipliers should be used.

Considering constant narrowing of personal and financial resources and ever-growing requirements to police officers, they must be trained in the context of innovations.

Electronic and blended learning integrated into educational management will help the police achieve their goals.

ELearning and blended learning

Both these concepts are widely used. But what do they mean? What do they have in common and in what way are they different? What will be the fundamental strength of these two types of training?

To achieve common understanding let us give brief description of both phenomena:

ELearning refers to all forms of learning, in which electronic means for presentations and promotion of learning material and / or to maintain the communication between people are used. We can call it also online learning, tele learning, computer based learning, multimedia learning, open and distance learning, computer - controlled learning and so on.

Blended learning

The concept of blended learning refers to such a form of learning which means connecting traditional classroom activities with contemporary forms of ELearning. The concept links efficiency and flexibility of ELearning forms with social aspects of face-to-face communication and practical training. In this form of learning a variety of teaching methods, electronic media and theoretical foundations of a learning process are combined.

OUR EXPERIENCE

Now we would like to tell you about our experience in introduction of blended learning at our university. Creating POLICE – ONLINE project using ELearning and blended learning by our German colleagues inspired us for launching blended learning experiment at the Immanuel Kant Baltic Federal University.

In September, 2015 the Resource Center of Foreign Languages of IKBFU where we work with my colleagues initiated introduction of blended learning at our university. Taking as a basis our German colleagues' experience, we decided to start our experiment at the Law Faculty, which is a traditional staff provider for the Kaliningrad police. Later, 6 more faculties joined the experiment.

The training was conducted for our lecturers, Touchstone and Viewpoint Textbooks and online Workbooks by Cambridge University Press were bought and the project was launched.

All home assignment was made online during the time when the certain unit was learnt. That is, the teacher controlled students' independent work, since she herself opened the unit home task for a defined period of time and then closed it. The program is such that the lecturer was able to watch what was done and when, how many times a student fulfilled the home assignment and how much time it took for them. Online Workbook also included some supplementary materials which students could use. Furthermore, a lecturer was able to leave important information on the forum, make announcements, and write their blogs and comments, etc. Using online Workbook could spare time at the lessons because the lecturer was able to do all these from their home PC.

In general, it was challenging and unusual experience both for students and lecturers of our Resource Centre. Such projects had already been conducted at some higher educational institutions of Russia but for us it has become really pioneering.

After completion of the experiment the survey was conducted to receive feedback from lecturers and students. Frankly speaking, feedback proved to be rather controversial. Some of our colleagues complained that the project was very time – consuming for them as they had to check home assignment late at night. For others it was merely unusual since the home task is traditionally checked during the lesson.

Here is the example of teacher's responses to the questionnaire on Blended Learning (BL) experiment

1) Was it difficult to you as a teacher to learn to use the Cambridgelms.org?	Not really as I had a very intelligent colleague who explained me how to use it
2) How long did it take you as a teacher to learn to use the Cambridgelms.org?	About two weeks
3) What level of English do your students have?	A2-B1
4) How many English lessons per week do your students have?	two
5) How can your students' motivation for language learning be described?	They write that they want to know English but now they do not have time and desire to learn it, either they want to acquire skills and get high marks
6) What are advantageous features of the experiment on Blended Learning for learners?	It helps organize the time, work to deadline

7) What are advantageous features of the experiment on Blended Learning for teachers?	It saves time at the lesson
8) How does the Touchstone 3 motivate students?	Well, it's difficult to say but the Touchstone is very well structured and it contains contemporary English (American) English
9) What aspect of English does the Touchstone 3 train most?	I think, Speaking
10) What are the drawbacks of the Touchstone 3?	In my opinion, it's not a drawback but it's based on the American English which is a bit difficult to accept as we were taught and we've taught our students British English, that is why such expressions as "hafta", "wanna", etc. made me feel nervous.
11) What problems did you have during the experiment?	We all had some problems with the software
12) How can you comment on the language content of the Touchstone 3?	It's good but as I have already said, American English is the thing I'm personally not used to.
13) How can you comment on the methodology of the Touchstone 3?	I really like it. The student's book and the teacher's book are well structured and written clearly
14) Have you used any supplementary materials or any additional techniques in teaching your Touchstone group? What? What for?	no
15) What is your general impression of the Blended Learning experiment using the Touchstone 3?	It's just the first step we should continue
16) What conditions must be met for the successful implementation of Blended Learning to non-linguistic students?	The first and the most important thing is motivation
17) Any additional comments	no

As for students, they evaluated the experiment in a different way. Here is a questionnaire, which a group of 13 students filled after completion of the course.

1. What is positive about the experiment?
<ol style="list-style-type: none"> 1. I think that everything is positive. Thanks to this experiment, I became better in English. 2. It saves the time of writing 3. I spend more time on studying English. It helps me to improve it. 4. You improve the knowledge of English. You learn new things. 5. The positive is that this test has different aspects: speaking, listening, writing, reading, that help to understand the topic. Plus it is that it is possible to work in the online -workbook when you're comfortable, of course, unable to keep the deadline. Dates are also an advantage, because you can go back to unfinished tasks until the unit closed. 6. Looking at it as a kind of experience, I can say that it is good. 7. I like the online workbook because it can be practiced at any convenient time for me. 8. The positive thing about the experiment it is different various of learning English: reading, listening, grammar etc. 9. The positive side is that there is an opportunity to work in the online -notebook which is new for Russian students. Moreover, there is a deadline of the unit, so you can regularly practice language, returning to them throughout the module, as well as improve your time management. 10. I think it was a great idea. Now I can study my English lessons without any papers. 11. Positive in experiment is improving their English language skills. 12. Through experiment I could learn something new and update old knowledge 13. Opportunity of doing homework online and study with the help of the Internet 14. I think that everything is positive about that. You can make homework on your laptop, using keyboard (I also think, it's wonderful experience for our future). For me - it is very convenient. 15. All is positive in this experiment.
2. What is negative about the experiment?
<ol style="list-style-type: none"> 1. There are frequent problems with writing the correct answer. The site does not always work properly.

Sometimes the results are not saved.

2. It is not always the results are stored, which is very annoying. Sometimes a website is simply not open.
3. Only work of the experiment is negative. In all the rest it is good/
4. Sometimes I forget about test's deadline
5. The negative point is only that there is a large flow of knowledge. Sometimes you do not have time to keep up with him.
6. For me negative feature is that after the end time of doing the test I can no longer open it.
7. The negative thing about the experiment it is too long time for exercises and don't interesting themes
8. Sometimes the system gives an error as the task is done, the program does not count points.
9. There are a couple of technical issues; they seriously inhibit the educational process. Negative in experiment - not enough time for this job.
10. The experiment requires a lot of free time
11. A large amount of tasks
12. In my opinion - it's all about program little problems. There was, and there is, a little "numbers" of bugs, but it I believe it will pass.
13. Nothing is negative.

3. Are four lessons per week enough for the success of the experiment?

1. Absolutely yes. This is enough for successful language learning provided hours is enough for English classes.
2. Yes. It's enough for the success of the experiment.
3. Of course. You manage to repeat and fix material.
4. Yes. The system often is faltering, for solving problems no points. Even when you enter the correct answer, it cannot be counted because of the extra space. It is not convenient, it is easy to overlook.
5. Yes, four classes per week is enough to improve your level of English.
6. Enough
7. In general, four classes to study topics for me are enough. But some topics I'd like to study longer.
8. Four lessons per week is pretty enough. Now I don't need looking for additional sources to my English progress.
9. Of course! These lessons are enough for us.
10. Yes, that's enough
11. Enough
12. Yes, I think that it is enough
13. Per week is too much for my specialty, cos we have a lot of homework. But if I were study English in profile subject - I think it's quite enough.
14. Four classes a week is definitely enough.

4. How can you describe your motivation for studying English?

1. I want to speak English fluently in other countries.
2. My motivation is a prestigious job. English language is needed in any work that I want to do.
3. Learning the language will help me in the future when applying for a job.
4. As for me reading and speaking helps me to train.
5. I understand that in the modern world you need to know a foreign language. To me he is not given easily, but I try.
6. My motivation - it's my future. Knowing that more useful to me English - I would like to study it
7. When I talk with someone in English abroad and cannot express their thoughts, I understand that it is necessary to know a foreign language.
8. I want to go abroad and talk, learn, understand everything that would be around me.
9. Firstly, I like English. Secondly, I just realize that there are no ways without a foreign language. English language is the world language.
10. I like it, I think English is one of the most thorough language. And it is very important to know it.
11. Knowledge of English language is very important, especially when you travel to other countries. My motivation for studying English is possibility to talk with foreigners.
12. English is an international language that's why English opens many opportunities in the future life and career
13. I think it helps to train writing
14. A wish to know foreign language and to be able to chat in it will help me in future
15. I think I just like it. And it is very important in my opinion to know at least three languages for the Man of Our Century.
16. I want to pass all my exams well and English too.

5. What aspects of English (speaking, listening, writing, reading) does the experiment help to train?

1. Almost all of them, listening, writing, reading.
2. All of them, except speaking.
3. All aspects are important
4. As for me reading and speaking helps me to train.
5. Speaking. As it turns out, my classmates love to chat in English.
6. Speaking and listening most to help me learn the language.
7. Writing.
8. Speaking is a great thing. Hot Topics in English - and your classmate is telling about the benefits and of GMO and dangers of plastic surgery.
9. I think all of them are important. Without any of them one is not able to assemble the knowledge about language.
10. I think is speaking and reading, because it is most useful in life.
11. It helps to train writing and reading.
12. I think all of them are quite important. Without gramma you will be fool while trying to speak with someone. I like speaking very much, and listening of course. It is beautiful to notice how different people talk in just one language.
13. I think it is reading.

6. What aspects of English doesn't the experiment help to train?

1. Speaking, because at home you cannot speak English.
2. Experiment doesn't help to train speaking.
3. It is rather reading. It seems, listening to something you remember, but you don't understand why.
4. Not one.
5. Writing less than the rest helps learn English.
6. Listening.
7. Writing
8. I don't even know actually. A language expert may answer to this. I can't catch it.
9. I don't understand the question.
10. Speaking, because in the experiment had no one to talk.
11. It doesn't help to train speaking
12. I don't know actually. I don't like to criticize this system course I see future in that kind of stuff.
13. All of them help.

7. Are the topics in the Student's Book interesting according to your point of view?

1. As for me, I am interested in these topics in the Student's Book.
2. I think all category of learning English in this book are important.
3. Unfortunately, some of them seem to me not so interesting.
4. Yes. Even something you learns new.
5. The most ordinary topics: studying, food, work. All this applies to each of us, so, yes, it's interesting.
6. Topics in the book are quite interesting.
7. No.
8. Topics are generally ordinary: food, health, beauty. However, we must recognize that any topic will find an echo in the breakaway Russian soul.
9. I can't say that the topics are interesting. But they shouldn't, they are about common life, common situations.
10. Yes, I think it is a very interesting topic, which give useful information.
11. I was interested in themes like "Wonders of the world" and "Relationships"
12. It isn't just interesting. It's good for your possible future connection with other people. For example, you met a man. He's just like prince without the horse but with the castle. And you will have to know him better, right? And thanks to the topics you can talk with him about anything! And this is not about just "prince". It can be a friend, or coworker. I think you understand my point.
13. Some of them are interesting, but others seem pretty boring.

8. What is the most and the least interesting unit of the course?

1. Almost all the topics of interest
2. The 6 unit is The most interesting unit, Relationships The 8 is the less interesting unit
3. Topics about relationships, travel and food.
4. All of them are interesting and useful. It is a lot of new information in everyone
5. The most interesting unit for me was Relationships and the least interesting unit was Managing life.
6. I cannot single out a particular unit. I have interest to topics such as: "Family life", "Food choices" and "Relationships"

7. For me the most interesting topic about food "Food choices"
The most interesting it is food, the least interesting is relationships.
8. I cannot single out one unit because they are same, it is a fact.
9. All threads are almost equally usual. I can talk about anything with passion.
10. To my mind, all the units are of interest.
11. Most likely, yes
12. The most interesting unit for me was 'Food choices' and the least one was 'What if'
I don't remember the name of topic, but I like that thing with "REALLY?!", "OH, I CAN'T BELIEVE IT!" It was very funny. The least - is about food. It's just about how much I like eating, but our classes in the morning, and when you are very hungry, you see all that pictures with delicious colorful Lord's gifts.
13. Most interesting for me were the topics about travel and natural phenomena.

9. Is it possible to train teamwork skills?

1. Definitely yes. In the classroom we always speak English to each other.
2. Yes it is possible
3. Of course it's possible. It is a very good method.
4. Yes, I think so. In units there are many tasks that require teamwork, and I like it.
5. Of course you can. Sometimes it is good practice. These tasks help to learn to speak a foreign language.
6. I think it is possible.
7. I have not noticed this program offering special tasks for developing teamwork skills. Well, yes, there are exercises such as "Work in pairs", but such exercises can be found in other books.
8. Of course. At class we often do some discussions together, we think about different situations and find solution using our English skills.
9. No, you do not improve their skills on the language without the teamwork.
10. Yes, it is
11. No, it is impossible
12. I think yes. At class we often do some discussions together, we try to know each other better, complete tasks with creating dialogs. It's kind of cool.
13. This experiment teaches us work in team.

10. Do PDF files, which accompany each lesson of the online book, help you to acquire knowledge?

1. Yes, I always download them and it help me
2. Yes, pdf files help
3. I didn't know that there are PDF files. Really. I did not use PDF files.
4. There is a useful information in them
5. PDF files to help us acquire knowledge. It is also a kind of workout for the mind.
6. Yes, in these files a lot of useful information for assignments.
7. PDF files are good.
8. Yes, I can find short information and basic grammar in PDF files
9. It's all helpful. You can understand your mistake and solve the problem faster.
10. Yes, it helps me to acquire knowledge.
11. I don't use any PDF files while the experiment
12. Yes
13. It helps a lot. You can understand your mistake and solve the problem faster.

11. Is it helpful that the online workbook gives keys to exercises?

1. Maybe, but I do not use them
2. Yes , good, the book gives the right decisions , otherwise , the test is unrealistic to go, not knowing how to answer to score
3. Yes, when there were difficulties I used keys.
4. Sometimes
5. Yes, it helps to do the tasks, you can test yourself.
6. The only positive thing about the experiment
7. Key answers are great.
8. It cheaters thing, but it's necessary in conditions of large amount of bugs.
9. Yes, of course. They provide an opportunity to test yourself and to correct errors.
10. Yes, because sometimes you spend a lot of time to find a mistake that you made in exercise and keys can save your time and nervous
11. Yes, it helps a lot
12. It kind of cheaters thing, but it is very helpful. I often make little mistakes, like no dot in the end of sentence, or

missing "to" or something. I like the possibility to check myself.

13. Yes, of course. Sometimes it's difficult without keys..

12. Do you spend more time on doing English homework now than you used to?

1. Yes, I spend more time on doing English homework than ever before, but it is useful.

2. Yes I spend more time than spent before on English lesson

3. Yes, much more. But I no longer go deep into the language.

4. Yes, I spend about two hours to do English homework.

5. Yes, I began to spend more time performing tests online.

6. I began to spend more time on English.

7. Yes, but it is doesn't work.

8. I really began to spend more time doing my home task.

9. Actually, yes. I didn't do almost any homework ever. Then I should go to the website and do something.

10. Yes, before teacher gave less homework, but now we do it to each lessons

11. Yes, now I spend more time doing my homework

12. Actually, yes. I'm very lazy person, so before - I didn't done ANY homework ever. And now - I do it every week, just like clocks. But sometimes I'm still lazy about last task with long written answer and it isn't good actually, but I'm working on it.

13. No. The time is the same.

CONCLUSIONS

As you can see, the opinions are different but the positive attitude prevails. I would like to say that such concepts as ELearning and blended learning cover more and more educational institutions both in Europe and in Russia, and our responsibility, as representatives of Russian educational school, is not to alienate from European education but try to become an integral part of it, because our objective as teachers is to teach, to bring up, and to develop, and this objective is universal.

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ROLE GAMES IN TEACHING ENGLISH

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ABSTRACT

One of the main purposes of learning foreign languages is the ability to communicate effectively with other language users. Teaching to communicate in real, everyday situations is very often neglected and students have little chance to practise ordinary language in class. Therefore, teachers should provide learners with opportunities to improve their speaking skills. Role play is a way of bringing situations from real life into the classroom. In role play, students need to imagine a role, a context, or both and improvise a conversation. The context is usually determined, but students develop the dialogue as they proceed. Role-play is an effective technique to animate the teaching and learning atmosphere, arouse the interests of learners, and make the language acquisition impressive. So this article will mainly focus on how to apply it successfully and take the most advantage of it in English class. There are four crucial factors for its success: the topic chosen should be real and relevant; the teacher needs 'feed-in' the appropriate language; correct errors in a proper way; some of teachers role are facilitator, spectator or participant. Incorporating role-play into the classroom adds variety, a change of pace and opportunities for a lot of language production and also a lot of fun!

Keywords: language, role play, appropriate, skill, situation, listening, reading, speaking, writing

REZÜME

Xarici dillərin öyrənilməsinin əsas məqsədlərindən biri digər dil istifadəçiləri ilə səmərəli ünsiyyət qurmaqdır. Həqiqi, gündəlik situasiyalarda ünsiyyət qurmağı öyrətməyə çox vaxt məhəl qoyulmur və tələbənin sinifdə adi dil tətbiq etməyə az şansı olur. Buna görə müəllimlər şagirdlərə danışma bacarıqlarını artırma imkanı təqdim etməlidir. Rol oyunları situasiyaları real həyatdan sinifə gətirməkdir. Rollu oyunlarda tələbələr rol, konteksti və ya hər ikisini təsvir etməli və söhbətləri improvizasiya etməlidirlər. Məzmun adətən müəyyən edilir, amma tələbələr dialoqu prosesdə inkişaf etdirirlər. Rollu oyunlar tədris və öyrənmə mühitini canılaşdırmaq, öyrənmələrin maraqlarını oyatmaq və dil əldə edilməsini təsirli etmək üçün effektiv bir üsuldür. Beləliklə, bu məqalənin diqqət mərkəzində əsasən onu uğurla tətbiq etmək və ingilis dili dərində ondan ən yaxşı şəkildə faydalanmaq olacaqdır. Onun uğuru üçün dörd vacib amil var: seçilmiş mövzu real və müvafiq olmalıdır; müəllimlər müvafiq dili təqdim etməlidir; səhvlər düzgün düzəldilməlidir; müəllimlərin rolu bəzi vaxtı vasitəçi, tamaşaçı və ya iştirakçı olmalıdır. Rollu oyunların sinifə daxil edilməsi müxtəliflik, sürət və dil istehsalı üçün çox fürsətlər və həmçinin çox əyləncə əlavə edir.

Açar sözlər: dil, rollu oyun, uyğun, bacarıq, vəziyyət, dinləmə, oxu, danışma, yazma.

INTRODUCTION

The aims of language teaching are commonly defined in relation to the four language skills: listening, reading, speaking and writing. Reading and listening belong to receptive skills, whereas speaking and writing are classified as productive skills. Speaking and writing are called productive skills because they involve language production. While uttering sounds gives a chance to communicate orally, writing skills enable people to communicate in a written form.

Role-play can be a very successful tool in the teacher's hands. As its prime goal is to boost students' interaction in the classroom, educators should not forget about incorporating such a speaking activity to reflect learners' theoretical knowledge of a language in practice.

It has been mentioned that role-play may differ in length and in difficulty. There are also two different types of role-play, that is to say, real-plays and surreal-plays. In sharp contrast to real-play, surreal-play should encourage an imaginative self-expression of the inner world of each student's mind. While real-play seeks approval for believing that a classroom can become the real world, surreal-playing calls for promoting an expression of thoughts and feelings of each student's mind.

For a role-play to be a successful speaking exercise it is useful to know some basic principles about organizing such an activity.

In order to develop a role play, teacher must first have clear objectives on which to base students' role play. The main bases for role plays are functions and grammar.

The most common situations for role plays are those in which the students may need to function in the target language. As with dialogues, the situations used for role play should be within the realm of experience, possible experience, or knowledge of the students. The more familiar a situation is, the easier it will be for students to participate fully. Appropriate situations include topics that students see or in which they participate in their own lives. Examples include shopping, interacting at school, talking on the telephone, asking for directions, making appointments, and attending business meetings.

Other possible situations for role play include fantasy situations from stories, television, or simulations and situations in which students prepare for a future event, for example, interviewing for a job in employment readiness programs.

Another basis for role plays is for practicing structures. Because role plays are less controlled than drills and dialogues, it is important to choose situations and contexts in which the target structure occurs naturally. For example, courtroom role plays work well for less-controlled practice of past and past-progressive tense, and for question formation. Roles usually include the judge, the lawyers for the defense and the prosecution, clients, and witnesses. Each student is assigned a role and each is played out during the trial. Remember that because role plays are less controlled practice activities, students may not use the target structures as much as you would like. There are usually several ways to successfully communicate meaning, so consider role play as an opportunity for students to practice a range of speaking and listening skills, rather than a single structure.

Role plays can range from highly structured, short exchanges, as in a restaurant, to those that are longer and more open ended. If you want a highly structured role play, you can write it up in situation cards.

I consider that there are some reasons for using role games in the language classroom:

- They are fun.
- They help to prepare students for real-life communication by simulating reality—in situations, in unpredictability, and in the various roles individuals must play in their own lives. In this sense, they bridge the gap between the classroom and the world outside the classroom.
- They can be used for assessment and feedback purposes at the end of a textbook unit. They can be used to help you determine the degree of mastery attained.
- They can consolidate learning and allow students the opportunity to discover their own level of mastery over specific language content.
- By simulating reality, they allow beginning students and EFL students to feel that they are really using the language for a communicative purpose. This, in turn, contributes to students' confidence in their ability to use English.
- They heighten students' self-esteem and improve their ability to work cooperatively.
- They allow students to experiment with language they have learned. Where students make up their own dialogue, they provide a special opportunity to go beyond what has been taught in class and to draw on the full range of their language competencies.
- They allow students to express who they are, their sense of humor, and their own personal communication style.
- They offer good listening practice.
- They provide an opportunity for practicing the rules of social behavior and the various sociolinguistic elements of communication (as determined by roles, ages, topic, or situation).
- They engage the learner physically. This involves the learner more fully and can be an aid in language retention.
- They can be liberating for many students who may enjoy expressing themselves through a role or a mask but may be inhibited about expressing themselves otherwise during the class. Students will sometimes take more risks and play with the language more when they are assuming a different identity.
- Role play can thus free students from the constraints of culture and expected behavior.
- They provide a context for understanding attitudes, expectations, and behaviors related to the target culture.
- They may be used as a stimulus to discussion and problem solving.
- They can be extensions of more controlled practice using dialogues. After practicing a dialogue, for example, you might develop role plays based on a parallel situation. A dialogue about buying a shirt could lead into a role play about buying a pair of shoes. Another way to use dialogue as the source of your role play is to use it to create cue cards for the role play.

Role games can and should be used as a teaching method when teaching languages. One reason why games could work well as a teaching method is because of the change that has occurred in teaching, where students have been becoming much more active in the whole learning process. Besides giving students a chance to be more active, games usually place the teacher in a background role, and therefore allow the students to take on more responsibility. It has also been made clear that games help create diversity and that can be very helpful in sustaining interest amongst students in the school. We have also learned that by creating diversity teachers are reaching out to a broader group of students and that is very important because students are individuals that differ from each other in so many ways. Besides creating necessary diversity in the classroom and being a good method for teaching, we must not forget that games are fun and that helps get students active in their learning. I think we can all agree on the fact that no matter what teaching method is being used learning does not take place without the student participating in the learning process. Aside from activating learners and creating diversity, games also create a comfortable and friendly atmosphere inside the classroom where students, especially shy students, might feel more comfortable in expressing themselves in the target language. Also games help students to get to know each other better, because many of them require more student interaction than other teaching methods might. Games can also be used to help recreate various situations from real life and therefore make the learning more real and give the students a sense of what they are doing is relevant. Another benefit to using games in the classroom is that children do mature through games and through playing games they learn many of society's rules and regulations. In addition when using physical games, children would get a change to get a necessary work out that is often lacking today, due to rapid change in our society.

CONCLUSION

Based on all of the information above it seems clear that although games are supposed to be fun and easy there are certain things teachers need to keep in mind when using them inside the classroom. First of all the teacher needs to do everything in his or her power to make sure that all students have a good experience from playing the game. Also the teacher needs to keep in mind that not all games fit certain students and some cannot be played inside the classroom. When selecting a game teachers need to ask themselves, "What are the goals am I trying to achieve by playing this game?" and they have to make sure that the game they choose is not too easy but at the same time not too difficult. If teachers believe a certain game might be too difficult for their students they need to be aware that they need to augment the game to make it more fitting. Finally, teachers need to make sure they explain all rules in detail, that during the game they do not interrupt the flow of the game and to plan some sort of a follow-up activity after the game.

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THE SPECTRUM OF ANTIMICROBIAL ACTION OF STRAINS OF LACTOBACILLI TO STRAINS OF ENTEROCOCCI ENTEROCOCCUS FAECIUM, ENTEROCOCCUS FAECALIS

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ABSTRACT

The spectrum of antimicrobial and bacteriocinogenic action of 5 strains of lactobacilli to 14 strains of enterococci was studied. It was found that the antimicrobial activity of lactobacilli against enterococci *E. faecium* and *E. faecalis* depends on the species and strain belonging of both lactobacilli and enterococci. Comparison of two species of enterococci showed that enterococci *E. faecalis* are more sensitive than *E. faecium*. Isolated strain *L. plantarum* 42 from highly salted cabbage, showing antimicrobial and bacteriocinogenic effect on enterococci.

Keywords: enterococcus, colonization, bacteriocin, plantaricin, peptides, bacteriocinogenic activity.

XULOSA

Энтерококкларнинг 14 та штаммига қарши лактобактерияларнинг 5 та штаммининг антимикроб ва бактериоциноген таъсир спектри ўрганилган. Лактобациллаларнинг *E. faecium* ва *E. faecalis* энтерококкларига нисбатан антимикроб таъсири лактобациллалар каби энтерококкларда ҳам тур ва штамм тегишлигига боғлиқ эканлиги аниқланган. Энтерококкларнинг 2 та турини ўзаро таққослаш шуни кўрсатганки, *E. faecalis* энтерококклари *E. faecium* га нисбатан лактобактериялар таъсирига сезгирроқ. Ўта шўр тузланган карамдан антимикробларга қарши антимикроб ва бактериоциноген фаолликка эга *L. plantarum* 42 штамми ажратиб олинган.

Kalit so'zlar: enterokok, kolonizatsiya, bakteriosin, plantaritsin, peptidlar, bakteriosinogen ta'sir.

РЕЗЮМЕ

Изучен спектр антимикробного и бактериоциногенного действия 5 штаммов лактобактерий к 14 штаммам энтерококков. Выявлено, что антимикробная активность лактобацилл к энтерококкам *E. faecium* и *E. faecalis* зависит от видовой и штаммовой принадлежности как лактобацилл, так и энтерококков. Сравнение двух видов энтерококков показало, что энтерококки *E. faecalis* более чувствительны, чем *E. faecium*. Выделен штамм *L. plantarum* 42 из сильно засоленной капусты, проявляющий антимикробное и бактериоциногенное действие на энтерококки.

Ключевые слова: энтерококк, колонизация, бактериоцин, планарин, пептиды, бактериоциногенная активность.

INTRODUCTION

Enterococcus faecalis involved in the initiation of human's inflammatory diseases due to genetic sensitivity and dysregulation of the immune response. *Lactobacillus plantarum* 42 is locally distinguished strain, which has antimicrobial and bacteriocinogenic activity with *Enterococcus faecium*, *Enterococcus faecalis*. The one of the relevant problems in the food industry and medicine is the search for microorganisms with antimicrobial activity to the agents of food spoilage and human infectious diseases in the food industry and medicine. Lactic acid bacteria, especially lactobacilli due to the synthesis of lactic, acetic, short-chain fatty acids aldehydes, ketones, possess these valuable properties.

In nature it is extremely rare meets lactobacilli - producers special bacteriocine-like substances, which actively inhibit the growth and development of pathogenic and conditionally pathogenic microorganisms. However, it is known as the *Lactobacillus plantarum* forms such as bacteriocins Plantaricin S [1], Plantaricin C11 [2], Y21 [3], TF711 [4]. These plantaricins inhibit the growth of gram-positive bacteria (*Bacillus cereus*, *Clostridium sporogenes*, *Staphylococcus aureus*, *Listeria monocytogenes*) and gram-negative *Salmonella typhi*, *Vibrio cholera*, *E. coli*, *Shigella dysenteriae*. From existing indicator cultures studied poorly antimicrobial activity of lactobacilli on the growth and development of enterococci. Only in the past decade to focus on enterococci *Enterococcus faecium* and *Enterococci faecalis*, especially

fecal enterococcus, which belongs to commensal bacteria (normal flora of the intestine) and does not exhibit pathogenic properties in the normal functioning of the human immune system.

However, when the genetic sensitivity of the human body and dysregulation of the immune system is involved in the initiation of inflammatory bowel disease. Thus, in mice with deficient in Interlace 10 and non-association with enterococcus faecalis is shown in 10-12 weeks after colonization by bacteria develops distal colitis of the colon, which then progresses to inflammation of the duodenum up to its obstruction, for a longer time than distal colitis, more than 30 weeks.

MATERIALS AND METHODS

OBJECTS: Cultures used for testing – *Lactobacillus plantarum* 8PA-3 (typical), local strains of *L. plantarum* 42,44, *L.rhamnsus* 41, *L.casei* subsp *paracasei* 48. Indicator culture: American strain *Enterococcus faecalis* OGIFR1, FI 2-2, 4610, *E. faecium* 2897, 50K, M76, 4605, 1026, 2714, from he collection of the Museum of all-Russian Institute of genetics of industrial microorganisms and local strains of *E.faecium* 364, 302; *E. faecalis* 422, 345 from the collection of the laboratory of the genetics of lactic acid bacteria, Institute of Microbiology of the Academy of Sciences. The recovery of the lyophilized in vial of tested strains of lactobacilli was performed in MRS-broth (HiMedia) and indicating cultures of enterococci in common hydrolysate-milk-broth (HM), according to the standard technique. Received hydrolyzed soft agar by adding 0,75% agar in HM-broth, solid MRS- agar by adding 1,8% of dry agar in MRS-broth. To study the antimicrobial activity of lactobacilli were grown in MRS-broth at $(37\pm 1)^{\circ}\text{C}$ in the anaerobic jar in a nitrogen atmosphere for 48 hours, enterococci grown in GM-broth for 24 hours at the same temperature in the thermostat. Liquid culture of lactobacilli in the amount of 1-3 μl was dropped on the surface of agar media were grown in anaerobic jar at $(37\pm 1)^{\circ}\text{C}$ for 12 hours, conducted the induction of bacteriocines by methodical induction 4.2.2602-10.4.2 (Moscow, 2010), after which the lactobacilli were grown in anaerobic jar for 48 hours. Then close with the resulting spot-grown culture was dripping a solution of the enzyme pepsin 5 μl (50 μg), was maintained at room temperature for 1 hour. Then the top was covered with a second layer of hydrolyzed soft agar 7 ml, seeded with enterococci at a concentration of 10^6 CFU/ml then were incubated for 18-20 hours. Checking the presence or absence of zone of inhibition of indicating culture as well as the growth of enterococci at the application site of the enzyme. Isolation and purification of bacteriocins-like substances conducted by L.Saavedre, F. Sesma [6]. Only proteins of the culture fluid was precipitated not 40 % solution of ammonium sulphate, but with 98,55%, then were dialyzed in a dialysis bag with a pore size of 1000 Da, the content substance of the dialyzed bag was lyophilized dried. Dry extract of proteins at a concentration of 2,5% (0,0025 g dry extract soluble in 0,1 ml sterile distilled water) was used to test for the presence of the bacteriocins-like substance.

To study bacteriocinogenic to the crude extract proteins sterile paper discs of 5 mm is soaked in the solution of extract of proteins impose on MRS agar, which is then covered with a second layer of soft agar with hydrolyzed milk concentration of enterococci 10^6 CFU/ml and then noted the presence of bactericidal action of crude extract proteins into the culture of the indicator enterococci.

RESULTS AND DISCUSSION

Antibacterial activity of lactobacilli to enterococci depends on the titer of the indicator culture of enterococci in the upper soft layer of hydrolyzed agar. Thus, when the titer of cells of the indicator strain is equal to 10^7 CFU/ml no inhibition of growth of enterococci (expert strain 2714), while at lower titer to 106/ml all sensitive enterococci. The lactobacilli in different ways exhibit antimicrobial activity to *E. faecium* (table 1). Typical strain of *Lactobacillus plantarum* 8 PA-3 inhibits the growth of all eight strains of faeciums. Strain *L. plantarum* 42 inhibits the growth of all strains of enterococci area with bactericidal action from 20 to 28 mm, *L. plantarum* 44 does not inhibit the growth of two strains – M 74 and M 76, to the remaining six strains culture is active, area of the bactericidal effect of *L. rhamnosus* is between 18 and 30 ml. Lactobacilli *L. rhamnosus* 41 and *L. casei* subsp *paracasei* 48 in a lesser extent inhibit the growth of enterococci. Indicating cultures most sensitive to the inhibitory action of the lactobacilli strain *E. faecium* 2897 and 4605.

Enterococci *E. faecalis* both standard and local strains were susceptible to the antimicrobial activity of lactobacilli (table 1). Studied five strains expert strain 4610, insensitive to 41 and *L. rhamnosus* 41, *L.casei* subsp *paracasei* 48 and sensitive to the two *L. plantarum* strains, all 5 strains sensitive to all kinds of lactobacilli. Area of bactericidal action of the lactobacilli to *E. faecalis* significantly larger than *E. faecium* strains. From the studied strains of lactobacilli is the most active *L. plantarum* 42, which effectively inhibits the growth of cultures of *E. faecium* and *E. faecalis*. Identifying bacteriocinogenic properties by the presence of the growth indicator of the cultures of enterococci in the area of bactericidal action of lactobacilli after destruction bacteriocinogenic substances by the enzyme pepsin also showed that bacteriocinogenic is a strain of *L. plantarum* 42. From cultures of *E.faecium* sensitive model strains 2897, M 76, 1026 and local strain 364, from 6 cultures of *E. faecalis* sensitive 5 strains. 3 model – 2714, OGJFR, FI 2-2 and two local 422 and 345 (table 1), are not sensitive strain 4610.

Table 1 Antimicrobial and bacteriocinogenic activity of the lactobacilli to enterococci (zone of inhibition in diameter, mm)

№	Indicator culture of enterococci	Tested lactobacilli				
		L. pl-m 8 RA-3	L. pl-m 42	L. pl-m 44	L.rham-nosus 41	L. casei 48
1.	E.faecium 2897	-	28,0*	28,0	25,0	18,0
2.	K 50	-	24,0	30,0	-	-
3.	M 76	-	26,0*	-	16,0	-
4.	364	-	24,0*	26,0	10,0	10,0
5.	302	-	20,0	18,0	-	-
6.	4605	-	21,0	22,5	22,5	12,5
7.	1026	-	26,2*	27,2	-	-
8.	M 74	-	25,0	-	17,5	-
9.	E. faecalis 2714	22,3	23,3*	21,0	18,0	23,0
10.	422	23,4	19,3*	25,0	22,5	18,0
11.	FI 2-2	10,0	25,4*	19,0	17,5	16,7
12.	345	15,0	25,0*	23,5	25,0	25,0
13.	4610	-	27,4	27,0	-	-
14.	OGIFR 1	10,0	15,0*	25,0	22,5	25,0

Note: *Bacteriocinogenic activity to enterococci

The test strain OGIFR1 the sensitivity by the disco diffusion method, when depositing in the hole 5 µl of extract zone of inhibition of growth is 22 mm. the Comparison of the spectrum of sensitivity of the indicator strains of enterococci established by microbiological method, their sensitivity to the crude extract proteins showed a coincidence of the data obtained from E. faecium strains 2897, M76, 364, 1026; from E. faecalis 2714, 422, OGIFR1, 2-2 PI, 345.

CONCLUSIONS

In recent years, there has been an increase in the number of people with immunodeficiency states, which leads to an increase in the incidence of infectious processes caused by opportunistic microorganisms, including enterococci. Particular attention is paid to two types of enterococci - E. faecalis and E. faecium - as nosocomial pathogens.

In this regard, particular interest is caused by microorganisms that inhibit the growth and development of fecal enterococci. Such is the local strain L.plantarum 42, isolated from highly salted cabbage, which shows antimicrobial and bacteriocinogenic effect on all types of enterococci studied. Studies on the antimicrobial activity of lactobacilli in relation to enterococci have shown a dependence on species and strain belonging. Comparison of two types of enterococci showed that enterococci E.faecalis are more sensitive than E.faecium.

Thus, the local strain L.pl 42 obtained by us can be suitable for use as a probiotic strain for the production of therapeutic biologics, dietary supplements to food, as well as food products for functional purposes.

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COMPARATIVE CHARACTERISTIC OF SPECTRUM BACTERIOPHAGES AGAINST *BACILLUS ANTHRACIS*, ISOLATED FROM SAMPLES EXTERNAL ENVIRONMENT OF GEORGIA. 2-nd REPORT. *B. anthracis*, SPECIFIC PHASE selection in the 2010-2011.

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ABSTRACT

Anthrax is a potentially fatal infectious disease naturally occurring in different regions of the world. The causing agent, the spore-forming microorganism *B. anthracis*, can be used as a bioweapon. Multi drug resistant anthrax strains can be considered as the most significant biothreat agents. Thus, countermeasures to neutralize this threat are highly demanded. This paper describes isolation techniques and characterization of new bacteriophages active against *B. anthracis*.

The series of experiments aiming isolation of new phage clones specific to *B. anthracis* have been carried out during warm season 2010-11. Five types of bacteriophages active against *B. anthracis* – Ba PAT, Ba ActIV, Ba ActV, Ba InsL and Ba InsZ have been isolated from environmental sources in Georgia. Initially, the phages were isolated on *B. anthracis* vaccine strains STI-1 and 34F2, using standard enrichment technique. TEM studies of newly isolated Ba phages have shown that the virion morphologies consistent with the Siphoviridae family of tailed bacteriophages (with isometric head and long noncontractile tail), although phages differ from each other by the size. The *B. anthracis* phages have been comparatively characterized based on phenotypic and genotypic properties, such as virion and negative plaque morphology. The newly isolated Baphages showed also diverse serologic characteristics, with BaActIV and BaActV phages more closely related to phage Gamma. The Ba phages demonstrated broad lytic spectrum within the species, which indicates to their potential for identification and biocontrol of *B. anthracis*.

Keywords: Anthrax, *Bacillus anthracis*, bacteriophages, lytic spectrum, virion morphology, phage neutralisation.

აბსტრაქტული

ჯილეხი წარმოადგენს სწრაფად მიმდინარე ზოონოზურ დაავადებას, რომელიც ცხოველიდან გადადის ადამიანზე. ჯილეხის სპორების ბუნებრივმა ან ხელოვნურმა აეროზოლიზაციამ შესაძლოა გამოიწვიოს ეპიდემია მაღალი ლეტალური გამოსავლით. განსაკუთრებულ ბიოლოგიურ საფრთხეს წარმოადგენს *B. anthracis* –ის შტამები, რომელთაც აქვთ შექმნილი ანტიბიოტიკებისადმი მრავლობითი რეზისტენტობა. *B. anthracis* -ით ინფიცირების და დაავადების განვითარების რისკის შემცირებისათვის დიდ მნიშვნელობა აქვს გამომწვევის დროულ გამოვლენას, ასევე ინფექციის წყაროს დადგენას და სანაჯიის/დეკონტამინაციის ღონისძიებების ჩატარებას.

ზემოთ თქმულიდან გამომდინარე, მეტად აქტუალურია *B. anthracis* მიმართ სპეციფიკური ბაქტერიოფაგების გამოყოფა და დახასიათება მათი შემდგომი გამოყენების მიზნით ჯილეხის დიაგნოსტიკაში, გამომწვევის დეტექციასა და ბიო-დეკონტამინაციაში.

ჩვენს მიერ 2010-11 წლებში საქართველოს სხვადასხვა რეგიონიდან მოპოვებული მასალებიდან გამოყოფილი იქნა *B. anthracis* მიმართ სპეციფიკური 5 ბაქტერიოფაგი - Ba PAT, Ba ActIV, Ba ActV, Ba InsL და Ba InsZ.

ფაგების კონცენტრატებისგან მომზადებული პრეპარატები (შეღებილი 2% ურანილ აცეტატი) გაისინჯა ელექტრონულ ტრანსმისიულ მიკროსკოპში JEOL SX100. გამოვლინდა რომ ყველა ფაგი მიეკუთვნება *Siphoviridae* ოჯახს (იზომეტრული თავითა და გრძელი უკუმშველი კუდით). ისინი განსხვავდებიან ერთმანეთისგან ზომით და ფორმით, შეიძლება იყოს სხვადასხვა სუბმორფოტიპებიც.

შევისწავლეთ მათი ფიზიკო- ქიმიური და ბიოლოგიური თვისებები. მოხდა ფაგების ნეგატიური კოლონიების და ლიტიური სპექტრის შესწავლა. აღმოჩნდა რომ სახეობის შიგნით ისინი ხასიათდებიან მაღალი ლიზისური აქტივობით. ამიტომ ისინი შეიძლება ეფექტურად გამოვიყენოთ *B.anthraxis* იდენტიფიკაციისა და მასთან მონათესავე სახეობების სადიფერენციაციოდ.

საკვანძო სიტყვები: ანთრაქსი, ბაკილიუს ანტრაჯი, ბაქტერიოფაგი, ლიტიკული სპექტრი, ვირუსის მორფოლოგია, ფლავენ ნეიტრალიზაცია.

INTRODUCTION

Anthrax is a zoonanthropotic disease known from the ancient period and up to the present days preserves the status of a particularly dangerous infection. Outbreaks of the disease are recorded annually in Georgia and in the Caucasus region, and in other countries of the world (1-4). Anthrax is an endemic disease in the Caucasus. In recent years there has been a tendency to increase with Luciano disease. According to the frequency of outbreaks of anthrax, including disease in humans, Georgians considered one of the most disadvantaged countries in the region (2,4).

The causative agent of the disease is gram-positive, spore-forming bacillus *B. anthracis*, which after getting into the body quickly multiplies in blood and reaches high concentrations (1,2). Opas Nosta Anthrax is caused by the fact that the spore forms of the microbe are capable of a long time to stay in the soil and change their properties in natural conditions, which leads to the emergence and development of strains aberantnyh antibiotic resistant options. The latter are gray s eznyu problem in the treatment of patients with anthrax (1,3,5).

Anthrax can be used as a biological weapon, because it is easily propagated and distributed as aerosols (1,5,7). Therefore, it is especially important to create an effective means to prevent this danger. Bacteriophages, which are naturalparasites, intracellular bacteria can be successfully used to prevent and reduce harm in the event of an act of terrorism with the use of bacterial weapons. *B. anthracis*. Bacteriophages specific for *B. anthracis*, beat can be applied as an alternative means for the treatment of anthrax and clearance surfaces contaminated's antibiotic resistant strains of *B. anthracis* (6,7).

The aim of the present study was the selection of specific phages anthrax from an environment of samples collected in different geographic zones of Georgia, and the study of their fundamental biological's your ETS.

Bacterial strains and bacteriophages

We used: standard anthrax vaccine strains - 34 / F₂ (Sterne), STI-1, and "55"; and reference -bakteriofagi - Gamma, IM and Fah from the Institute collection Bacteriophagy, Microbiology and Virology named Giorgi Eliava (Tbilisi, Georgia), as well as bacteriophages specific to the *B. anthracis* (5 phages) identified in the course of work from various samples of the external environment.

RP G microbiological media and buffer solutions

triptiksoevy broth and agar (TSB and TSA), cardio-cerebral hood - broth and agar (BHIB and BHIA); sky physiologic solution prepared on a phosphate buffer (PBS), pH 7.4.

Methods for isolating and studying bacteriophages.

Isolation, cloning and concentration of bacteriophages, as characteristic of the negative colonies and determination of lytic spectrum provodilina strains *B. anthracis* 34 / F₂ (Sterne) and STI-1 using standard methods (8,9,11), as described in the previous message (12).

To study Str s ck structure phage virions were obtained concentrates with high titer lightened, and high speed centrifugation. The morphology was studied using nucleocapsid negative pole p rastirovannyh phage preparations (10) via a transmissible electron microscopy (TEM), with electron microscope JEOL 100 SX (Japan).

Phase interaction with Host cell, in particular, the time and intensity of the first adsorption was studied on vaccine strain *B. anthracis* 34 F 2c accordance with with a method using chloroform (8,9,11).

Serological characteristics and affinity phages were studied in cross neutralization reactions (8,9) via prepared previously (12) gamma antifagovoy serum (Gamma APS). Constant measured in homologous neutralizing system in a 90-99% th neutralization.

The results of the study and their discussion

The first series of works isolation of phages active on a *B. anthracis* was conducted in 2008-09. (12). The second series of works,described in this paper, began in the spring of 2010 and ended with the fall of 2011 goda.Stselyu releaseanthrax phages warm season (May-October) and materials from the environment of various

regions of Georgia were collected: Samtskhe -Dzhavaheti, Marneuli, Kvemo Kartli Tbilisi and the surrounding area. There were collected 24 samples of water and soil.

To study the activity of lytic bacteriophages of *B. anthracis*, we screened 18 Georgian virulent strains of *B. anthracis* from the collection of the Institute G. Eliwa. These strains were genotyped seen previously (13). Rabota conducted in the laboratories of the National Center for Disease Control and Public Health of Georgia, where deposited these strains. For comparison, the reference phage 3 - Gamma, Fah and IM. The results are shown in Table 2.

CONCLUSION

During 2010-2011 external environment of Georgia, we have allocated 5 new tank bacteriophages active against *B. anthracis*. On the morphology of the virion all 5 phages are related to family Siphoviridae. They are different about each other and the reference phages for serological parameters. Phages Act IV and exhibit Act V closer antigenic affinity phage Gamma. Newly-selected phages *B. anthracis* exhibit high lytic activity within form and can be used to identify the anthrax span, as well as the goal of this bio control special ops meat microbe.

Bacteriophages were isolated by sample enrichment samples using *B. anthracis* strain 34 F 2 (Sterne). When checking the primary phage activity Lytic activity was investigated on the lawn of the host strain *B. Anthracis* 34 F 2 on the tight second medium. Negative colonies studied 5 bacteriophages differed in morphology and size (Table 1).

Morphology of negative colonies of new isolated phages was investigated on the lawn of the host strain *B. Anthracis* 34 F 2 on the tight second medium. Negative colonies studied 5 bacteriophages differed in morphology and size (Table 1).

In studying the morphology of the virion allocated *B. anthracis* - specific phages using TEM, it was found that all phages belong to the family Siphoviridae, having the head of the icosahedron shape and the long arm of an irreducible, although individual phages are definitely different from each other in shape and size of components of the virion.

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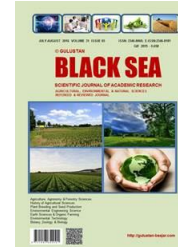
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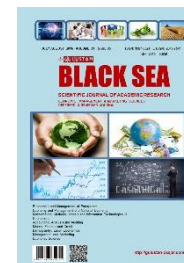
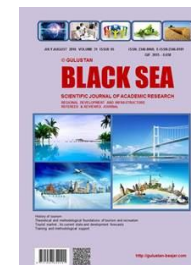
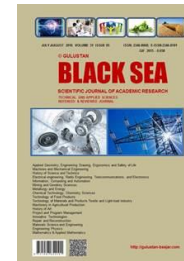
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