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MODERN PROBLEMS OF UPBRINGING AND ORGANIZATION OF RECREATION FOR CHILDREN AND YOUNG PEOPLE

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The article discloses some problems of upbringing in recreational activities of children and young people based on innovative trends, forms and methods of work that contribute to their inclusion into the proclaimed humanitarian ideals and values both declaratively and objectively. Special attention is given to SpArtan games that are conditioned by the necessity to solve important modern socio-cultural and pedagogical problems that contribute to recreation and leisure, as well as spiritual and physical invigoration, humanitarian upbringing, comprehensive personal development in children and young people.

Keywords: upbringing, recreation, children, young people

Complicated social and demographic situation, state of health, low level of physical fitness, increase in crime and drug abuse, devaluation of spiritual and moral values in the conditions of modern Russia make the problem of physical, psychological and spiritual health of young people extremely important. Development of ideals, cultural examples and role models that can motivate to achieve, be successful in one's life and professional career not by any means, but rather by means of moral, cultural, scientific, intellectual, and physical perfection is especially important.

Over the recent years attention of the scientists has been attracted by the problems of recreation for the youth. This is mostly connected with the scale of changes this sphere of life is characterized by. It has become possible to talk about the growing role of recreation for children and young people, and as a consequence, about the increase of its influence on the process of socialization of the young generation.

The process of upbringing as well as the sphere of recreation, leisure and free time that includes individual or organized forms of activity (leisure, entertainment, socialization with other people, self-development, etc.) that a person carries out according to his/her personal will after having fulfilled his/her professional and social duties are of significant importance for personal participation in social experience, creation of ideals and cultural values.

Recreation can positively affect all spheres of human activity and contains significant educational potential. The nature of this sphere of human activity's influence on the personality and relationships with other people is essentially dependant on the type of things a person does during his/her free time.

Recreation marked by relatively low culture of its employment (spontaneity of its course, consumer attitude, prestigiously-conformist motivation, etc.) can prevent from the expected recovery of energy, spiritual, cultural, and physical development, reviviscence of

creativity, and, moreover, turn into the criminogenic social factor.

Analysis of forms of recreation preferred by young people shows that «over the recent years in Russia not much attention has been paid to educational aspects of recreation, which leads to spreading of spontaneity of spending free time... Due to the structure of recreational activity, productive and substantial forms of recreation are gradually disappearing. They are replaced with the types of activity oriented towards joint spending of free time, conformism, behavioral ostentation, and aggressiveness» [3, C. 97–98].

Infantile attitudes, pleasure, spending nice time and entertaining oneself have become young people's priorities. These priorities very often contradict the norms of morality, esthetics, and culture of truly human communication. Passive recreation that negatively influences physical fitness of a person is becoming more widespread, mostly because of television and computer games. Preference to certain types of activity that involve either purely physical, or creative (technical, etc.) ability become prevalent. Therefore, people tend to be drawn to a certain specialization. Naturally, it discourages realization of the humanitarian ideal of the comprehensive personal development in the sphere of recreation.

The important question one has to ask is how to provide young people's recreation with humanitarian focus, i.e. to fill it with activities and organize it in the way that it provides not only interesting and entertaining leisure time, but also contributes to physical, mental, spiritual and moral perfection, harmonious versatile development.

This does not mean that certain ideals, cultural standards, or models of behavior should be enforced. We mean providing conditions where children and young people realize the attractiveness of socially significant ideals and forms of behavior for themselves, have an opportunity to «try them on», evaluate them and if they want to, they can take active measures

to adopt them further on based on self-realization and self-development [5].

Researchers of modern problems of upbringing and organization of recreation for young people tend to link it to reconsideration of major goal forming elements, re-evaluation of values, search for new prominent features of the youth policy. Nevertheless, we are faced with the crucial problem of the necessity of the new content, as well as new forms and methods of work with the youth. First of all, we are talking about getting young people interested, making them active partners of social and pedagogical activity, subjects of development of their personal individuality. The program and means that young people recognize and that spark their interest can serve as an impulse that motivates young people to cooperate in terms of this problem's solution.

Effect and social importance of this type of social and pedagogical activity concerned with upbringing and organization of recreation of young students greatly depends on the type of ideals, cultural standards, and models of behavior that are utilized, as well as the forms, methods and means that are used.

In the modern situation of the Russian society it is not enough to recognize the importance and general characteristics of the new humanitarian system of upbringing and organization of recreation for children and young people. The problem of determination of new concrete forms, means and methods of this system's development come to the forefront. Certain steps have been made in this direction. Some of the humanitarian systems of upbringing have become widely popular, they were embodied in the works of renowned Russian innovative educators as V.A. Sykhomlinskiy, Sh.A. Amonashvili, E.N. Ilyin, V.F. Shatalov, M.P. Shchitinin, etc.

Alongside with this, contradiction between the declared humanitarian ideals (standards, models of behavior) and real orientation towards them arises.

In particular, modern social practice at the mundane level in many professional spheres of activity, including the system of upbringing and organization of recreation, is characterized by the lack of real orientation towards the harmonious development of the physical and the spiritual in a human being, opposition between «the external person» and «the internal person». According to I.M. Bykhovskaya, this opposition comes into two forms. On the one hand, we observe «devaluation of values, cultural meaning of embodiment, social status and prestige of personal physical image; lack of real mass orientation towards culturalization (stems from the word «culture», not from the word «cult») of one's embodied, kinetic

functions; the approved «somatic negativism» which manifests itself in various spheres and forms – starting from indifference to one's physical health (until the day comes when it is lost!), distrust of one's embodied experience, «voice of one's body» that not many people can hear and understand, and ending with puritan views of any types of «nude» art, which is not always «pornography» and can represent what Baudelaire called celebration of «grandeur of nudity» [1].

On the other hand, there is a form of opposition between the external and the internal, which is «a sort of somatization of a human and absolutization of one's «muscular» and «bust-and-buttock» merits [2, C. 11, 12].

There is a contradiction between the declared humanitarian ideals and the existing forms and methods of work with the youth that are offered and used for popularization of these ideals. Oftentimes these forms and methods do not encourage harmonious perfection. They encourage either intellectual or physical perfection; either creative or sportive skills, etc. It causes monodirectional (one-way) development and often produces negative influence on the personality and social relations.

Most programs of upbringing and organization of recreation for young people are oriented towards utilization of game competition. As a rule, this type of organization is used in modern sport, for example, and has a negative influence on the personality and social relations, as it develops the desire to win at any cost, even at the cost of one's health and moral principles; it promoted monodirectional personal development; limits creative abilities, gives rise to manifestations of nationalism; leads to development of such negative personal qualities as selfishness, aggressiveness, envy, etc.; makes social integration of disabled people difficult, as it isolates them from people who do not have such disabilities, etc. [4, 5].

Therefore, at present it is important to look for and implement such innovative trends, forms, and methods of work, that both declaratively and objectively contribute to its inclusion into the proclaimed humanitarian ideals and values into the practice of upbringing and organization of recreation for children and young adults.

One of the options for the solution of this problem is offered in the present work. Namely, it is organization and holding of the Spartan Games, which help to develop orientation towards the personal ideal for the youth, which was described and justified by V.I. Stolyarov in 1990 in the new humanitarian project called SpArt [4, 5, 6].

The essence of the project is to the develop and implement into practice innovative forms

and methods of humanitarian upbringing, invigoration and organization of recreation for various population groups, that presuppose humanization (increase of spiritual and moral orientation) of sport, its integration with art.

These forms and methods are designed to help finding solutions to a number of socio-cultural and pedagogical problems. The main problems are:

- upbringing of a viable personality oriented towards self-development, revealing, development and manifestation of one's creative abilities;
- sound and proportionate development of external (physical), mental and spiritual (moral and esthetic) qualities, i.e. harmonious development;
- upbringing of a versatile (universally-developed) personality that manifests its creative abilities in various fields;
- patriotic upbringing, exposure to national culture alongside with nurturing of tolerance: respect to values of other cultures, ideologies, and beliefs;
- organization of active creative recreation and socialization with various groups of population;
- drug abuse prevention, as well as prevention of other aspects of deviant behavior in children and young people;
- social rehabilitation and integration of the disabled [5, 6].

In the course of long-term practical realization of the «SpArt» project we utilized a complex of innovative SpArtian forms and methods. At present they are used in the system of upbringing, invigoration and organization of recreation of various groups of population in 20 regions of Russia. The most active and versatile work is carried out in such regions (apart from Moscow) as the Republic of Bashkortostan, Krasnodar and Krasnoyarsk Krai, Kemerovo, Kursk, Nizhny Novgorod, Saratov, Smolensk, Tomsk, Tyumen, and Ulyanovsk regions, the Republic of Sakha (Yakutia) [5].

The system of upbringing and organization of recreation for children and young people based on the deployment of the StArtan games and other SpArtan forms and methods is currently important not only for Russia. A number of factors determine its international importance. First of all, this system reflects the

growing tendency of the XXI century civilization not only to proclaim and declare the ideas, ideals, and values of humanism, but also to find ways of their practical realization.

Secondly, SpArtan forms and methods (among them SpArtan Games are of a great importance) are a complex scientifically justified program for realization of goals, ideals, values of humanism in the process of upbringing and organization of recreation for children and youth. Secondly, SpArtan forms and methods are connected with the growing concern of scientists and practical specialists about the low level of physical activity in children and young people in devaluation of moral and other internal values in modern sport (especially in high performance sport). They are meant to assist in the process of raising the level of attractiveness of physical education and sport for children and young people, humanization of sport, activization of sporting and humanitarian upbringing of the young generations that has been going on in the course of the recent decades in a number of the world countries.

Thirdly, SpArtan forms and methods form the scientifically justified methodology of solution for the timely and debatable problem of integration of physical education with other forms and types of pedagogical activity, strengthening of the connection between sport and art in the system of upbringing and organization of recreation for children and young people.

References

1. Bykhovskaya I.M. Human physicality in the socio-cultural dimension: traditions and modern times. – M., 1993. – 180 p.
2. Valeeva R.A. Theory and practice of humanitarian upbringing in European pedagogics (first half of the 20th century): Monograph. – Kazan: Kazan Pedagogical University, 1997. – 172 p.
3. Concept of drug abuse prevention in children, teenagers and young adults by means of physical education and sport // The Herald of Goskomsport of Russia. – 2003. – № 4. – P. 89–120.
4. Stolyarov V.I. Sociology of physical education and sport: Textbook / V.I. Stolyarov. – M.: Physical education, 2004. – 400 p.
5. Stolyarov V.I. Spartan games in the humanitarian system of upbringing and organization of recreation for student youth / V.I. Stolyarov, S.A. Firsin. – Saratov: OOO Publishing center «Nauka», 2011. – 176 p.
6. Stolyarov V.I. Content and structure of physical and sportive upbringing of children and youth (theoretical analysis): Monograph / V.I. Stolyarov, S.A. Firsin, S.Yu. Barinov. – Saratov: OOO Publishing center «Nauka», 2012. – 268 p.

LEARNING ORGANIZATION OF TEACHERS AT SELF-LEARNING UNIVERSITY

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The Article dwells on the urgent issue of level increase of professional competence of teachers of higher professional institutions in the process of learning organization at self-learning university. As an example we took experience of Astrakhan state university.

Keywords: self-learning university, teacher's professional competence, learning organization

The present educational environment in institutions of higher education is not sufficiently promotes the solution of optimizational problems of using resources and teacher's skills. As a result, its role in the development of the educational environment of the university is decreasing in order to improve the quality of graduate's education. In this regard, the creation of learning organization system of high school teachers' training is a pressing problem for the theory and methodology of professional education; the development and the scientific study of learning organization of teacher's training at self-learning university is important and well-timed.

Analysis of higher educational institution teaching practice shows that the teacher is not fully demonstrate his/her available professional skills in various areas of educational activities. Realization of teachers' professional and pedagogical skills is often intuitive and spontaneous that shows an insufficient level of his/her professional competence formation.

Nowadays, the competence approach is considered to be a basis in solving problems of specialist's lifelong learning professional development. The priority of major competences development in the process of professional activity is also practically assured.

The formation of university teachers' professional competence requires mastering the mechanisms and methods of potential realization of self-fulfillment and creativity in its process. However, teachers are not always focused on the formation of professional and important qualities.

All these problems, in their turn, prove the necessity to create a learning organization system in order to train teachers of higher educational institutions.

The objective of the research. The main factor in improving teachers' professionalism at higher educational institutions is learning organization. In this regard, the creation of the learning organization system is an urgent issue and it has to be effective because not only level increase of teacher's skills, but also as a consequence, the quality of education depends on it.

We have many contradictions in the realization of the idea of optimization of high school teachers' activity. Especially between the created organizational conditions for the formation of high school teachers' professional competence and absence of positive effect in the process of its implementation in many institutions. It happened because traditional approaches prevail and we have insufficient orientation programs focused on specific professional and educational activities in the educational environment of a modern university.

Thus, you need to figure out ways to improve teachers' activity effectiveness by creating learning organization, which would provide steady increase of the quality of educational services and professionalism at self-learning university in the conditions of market economy.

Materials and methods of research

Self-learning university, as we understand it, is an educational organization that creates, acquires, transfers and preserves knowledge «on-line». In other words, special conditions are provided at self-learning university for the constant development of employees' skills to achieve the results they want to achieve [1].

One of the main aspects of university management is updating and providing conditions for knowledge being generated by staff-members.

Any modern university should become a learning organization. A teacher entering the university sphere should not be isolated from the outer world. On the contrary, university needs tools to choose the best of the environment, concentrate the cutting-edge knowledge and technology in the professional sphere.

Staff development by means of knowledge and educational process management promotes favourable environment in an organization, increases motivation of the staff members and their loyalty to the organization, as well as provides for implementation of the main principles of a learning organization: development, involvement, shared vision.

The experience of Astrakhan State University (ASU) is very interesting, as the university has some interesting projects, which can be used, transformed and developed to establish a learning organization in the university.

For example, the implementation of benchmarking method, which traditionally means the learning based on the experience of the leading companies, is noteworthy [3]. In particular, the experience of managerial decisions

of Toyota Company has been studied. The system of strategic planning (Program of Development of ASU) has also been developed and implemented. Besides, executive communications were set up on different levels connecting all the subdivisions («just-in-time» information exchange).

There is no doubt, that every learning organization should present the example of developed internal information space. Astrakhan State University is not an exception, having a newspaper «Vesti AGU» and web-site www.aspu.ru.

Network of electronic document management «DIRECTUM», a developed system of protocol service can also be mentioned in this connection.

However, it is not enough. The complex of these achievements still does not make ASU a learning organization, as it is necessary to create a complete system of comprehensive development, which undoubtedly includes organizational learning of the staff.

The main directions of expedient development of the university have already been defined. Firstly, it is necessary to develop a system of objective assessment of professional characteristics of the staff based on key competencies and upgrade the reward and remuneration system. It is also necessary to perform regular advanced trainings, to carry out fast and qualitative mastering of new educational technologies, exchange of oblique knowledge among the staff. All the staff members should ideally have a clear notion of their personal career path development in the university.

Results of research and their discussion

Up to that time several relatively independent factors, influencing the process of learning of the staff of an organization have been formulated. These factors include the following: adaptation to the changing conditions, process of forming shared vision of events and processes, process of organized obtaining new knowledge, process of educating top management of the organization; learning through the process of innovation; process of stage-by-stage learning on different phases (life cycles) of an organization.

Development and implementation of organizational learning principles in ASU will provide every staff-member with an opportunity to plan the career, scientific and teaching activity in a conscious manner, to get up-to-date knowledge and skills as well as implement them in professional sphere. And the leading position among the universities is promoted by the cutting-edge, advanced knowledge, modern technologies, highest professional skills of teachers.

Learning organization is a dynamic process of the spread of knowledge on production problems solving, which allows all the staff to get and implement into the work the knowledge and practical skills, permitting them adapt to the changes in the environment more successfully and efficiently, to work out new models of professional activity, creating the competitive advantage for a university. This is

the process, promoting the spread of intellectual component of qualification on the «aggregate» employee, i.e. turning the knowledge of one employee into the knowledge of the whole organization [4].

Learning organization is essential not only for the personnel's professional development, but also for building up the potential of flexibility, mobility, adaptability.

It is due to learning organization that is a part of the educational system structure that the university is able to react more efficiently to the modern processes in economic, social and technological spheres. Thus implementation of the organizational education programmes encourages the enhancement of their professional competence, ensuring competitiveness of the university in the commodity and services market. Proactive education is considered significant as well, enabling orientation to the changes in the external medium.

The current educational situation in Russia requires that the higher school should be the institution of reproduction and formation of culture as a developing system of spiritual values, technologies and creativity.

Astrakhan State University applies various methods of learning organization, including the internal educational courses which are in great demand and aiming at the increasing the level of the academic staff professional competence.

Internal educational courses are a type of learning organization that implements a complex approach to the specialized education and providing the required level of training.

Thus the current situation in the system of higher education is characterized by the decrease of the number of teachers with pedagogical education, constantly demanding requirements to the academic staff professional competence, as well as by the updating of the content of training, it is necessary to organize and hold courses which would enable to augment knowledge, to advance skills in various spheres.

The university holds on a regular basis workshops for teachers «Active and Interactive Training Methods», «Leadership in Education», «Essentials of Lean Production».

Retention of the content of the above mentioned courses enables forming of quite a high level of professional competence of the university academic staff in the sphere of designing and implementing the competence-oriented programme papers with the help of educational technologies of active and interactive training. Besides this contributes to the development of corporate culture, ensures a certain degree of cooperation between the staff of different units.

Obviously some tasks are not resolved. For example, it is important to determine the con-

ditions optimizing the teachers' involvement in learning organization, so that their participation were not formal and forced, but conscious and aiming at realization of the training results in the trained teachers' professional activity.

Conclusion

To summarize: to create a system of learning organization in a self-learning university is quite a complicated process which requires formation and implementation of certain psychopedagogical and organizational conditions. We are convinced that shifting of the focus towards solving the task of learning organization of teachers in a self-learning institute will enable, first, to increase the level of the teachers' professional competence, second, improve the quality of the training process at the higher

school [2]. Therefore the key idea of the article is the idea of the primary role of forming the teachers' professional competence in the process of learning organization.

References

1. Moldavskaya E.E., Treschov A.M. Self-learning university // Organization Corporate Culture of the 21st century. DDMA. – Kramatorsk, 2011.
2. Romanovskaia I.A., Khafizullina I.N. Viewpoint of prosperous teachers on the issues of the quality of education. Vector of Science of Togliatti State University. Series: Pedagogics, Psychology. – 2012. – № 3. – P.180–183.
3. Treschov M.A. Benchmarking as a tool of university management // Vestnik of Nekrasov Kostroma state University. – 2011. – № 5–6.
4. Treschov A.M., Sergeeva O.F. Methods and Forms of Learning Organization of the University Staff // Vector of Science of Togliatti State University. Series: Pedagogics, Psychology. – 2012. – №2. – P. 295–299.

SUBJECT AND MAIN CATEGORY PRE-PROFYL' PREPARE SCHOOLCHILDREN

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The paper presents an analysis of the concept of «pre-profyl' prepare» in modern research, is considered categorical apparatus is the essence of this type of training students in basic school. The author proposes to consider the term «preprofile training» as the process of values and personal qualities, develop special skills of students, the development of a strategic vision for the future of life since the beginning of differentiation of their interests, aptitudes and individual features.

Keywords: pre-profile prepare, schoolchildren

«Pre-profile training» is a significant concept that carries an inter-subject nature. In modern researches one can see the idea «pre-profile training», presented in a number of meanings. Moreover, we can find ideas that are included into the research subject – profile orientation, profile self-definition, professional socialization, differential education, etc.

Objective: set a conceptual apparatus of the research object – pre-profile training of students of basic school in modern scientific studies.

Authors' points of view differ in interpreting the term «pre-profile training». It is studied as a system of activities that provide for a selection of a further education and profession (S. Kravtsov [8], O. Pushkina [13], S. Krivkykh, and N. Bukina [9]) as a process at the stage of professional socialization (R. Gera [5]), as a complex preparation to select an education (E. Vyazemskiy [4]), etc.

Thus, interpretation of the studied term by S. Kravtsov draws an interest. The scientist studies pre-profile training and profile education within an integral relation as a factor of institutional transformation of education system, aimed for a growth of its quality and efficiency, due to an increase in qualitative competitiveness of education system [8, p. 15]. The author sees the term «pre-profile training» as follows: pre-profile training is a system of pedagogic, psychologic-pedagogic, informational, and organization activity that provides for self-definition of basic school high-grade students in terms of their selected profile directions of future training and broad area of further professional activity (including selecting profile and place of specific place of education in higher school grades or other ways of further education) [8, p. 29–30]. O. Pushkina refers to the same definition of the term in a shorter expression.

Definition of pre-profile training by S. Kravtsov, S. Krivkykh, and N. Bukina differs from the concept, described above. According to these authors, pre-profile training represents a system of pedagogic, psychologic, informational, and organization support of basic school students that

provides for their self-definition at the moment of finishing their basic general education [9, p. 7]. From our point of view, this version of the term is narrower and more correct in terms of the system of differential education.

R. Gera studies pre-profile training wider, as one of many stages of professional socialization of scholars. According to the author, pre-profile training represents a system psychologic-pedagogic, informational and organization process at the foundation of the following approaches: activity, projective, personal-directed. R. Gera points out that these methods provide for selecting education profile by students at higher grades of general education and constructing a trajectory of further professional development. Let us point out the main components of pre-profile training that are outlined by the author:

- 1) mastering a system of professional ideals;
- 2) formation of professional values according to the selected ideals;
- 3) formation of an attitude towards professional environment;
- 4) formation of principles, motives, strategies, plans, and programmes of an individual behavior according to the mastered and formed ideals, values, needs, and relations;
- 5) selection of education profile at higher grades of general education and construction of a trajectory of further professional development [5, p. 6–8].

Pre-profile training of students, as shown by E. Vyazemskiy, is a complex training for the vital selection of their further educational strategy [4].

Significant ideas of pre-profile training that form its essence are profile education, profile and professional orientation, differentiation, conscious choice, interests, inclinations, needs, abilities, professional socialization, self-definition of profile directions. Let us analyze these ideas specifically.

Profile education is, according to I. Kuchma, a special method of organizing education within the system of general education that is aimed for such concepts as: individualization

of training, developing productive motivation of training, broadening abilities to select education trajectories and routes according to individual inclinations and preferences [10, p. 3].

Profile education, as shown by E. Vyazemskiy, is a mean to differentiate and individualize education that allows to account inclinations and abilities of students, create conditions for training high-grade students according to their professional interests and intentions in further education due to alterations in structure, contents, and organization of educational process [4]. A version, represented in dissertation by E. Chepikova is quite close to the described definition of profile education «Profile education... is represented as a mean to individualize and differentiate educational process that allows one to account inclinations and abilities of students more specifically, create conditions to train high-grade students according to their educational and professional plans» [15, p. 3]. Besides, E. Chepikova points out a trend that has been observed recently within the system of pre-profile training – replacing profile orientation with a professional orientation. As the author points out, such replacements are observed when orientation courses are aimed to support choice of profession, not profile, and methods that are borrowed from the area of professional orientation are used within systems of psychologic-pedagogic diagnostics without adaptation to age peculiarities of general school students. Also, as E. Chepikova outlines, «without a complete orientation component, pre-profile training comes to forming classes and «picking» students regardless of their personal interests and abilities» [15, p. 4].

Most scientists come to an idea that profile training that is being introduced in high-grade school, compared to traditional educational models, imply realizing significant changes in education. Modern scientists and practitioners refer the following issues to unsolved problems of organizing profile education and introduction of pre-profile training: insufficient development of methodological basics of education profiling; incorrect orientation toward introduction of the system of profile education and pre-profile training as a way to improve socialization of students; lack of qualified staff who are able to realize programmes of profile education and pre-profile education; lack of textbooks and informative materials for each profile; insufficient development of regulative basis of the studied process that should specify necessary changes in the structure, contents, and organization of educational training at higher grades of general education, and, therefore, defining necessary profiles of education on the whole; financial provision of network interaction between schools and other institu-

tions of general education, etc. [12, p. 4]. Definition that we consider as basic for the term «profile education» is «a system of organizing educational process that provides for a successful profile and professional self-definition of students via means of variability and individualization of educational process, broadening social situation of development, involvement of professional context, and thus preparing students for their further professional education and professional activity according to a selected profile» [12, p. 11].

The next concept, studied in order to comprehend the research object – pre-profile training is «profile and professional orientation». These concepts stand on a significant theoretic foundation, they form on a joint of philosophy, medicine, psychology, pedagogy, sociology. Among main approaches towards this problem we can outline the following directions: structural theories (N. Akserold, E. Ginsburg, J. Miller, D. Forsh, and others); motivational theories (A. Maslow, E. Row, V. Froom, F. Herzberg, and others); theories of «individuality» (D. Super, L. Tiler, S. Fukuyama, J. Holland, and others). As M. Askarova points out, profile orientation should be considered as not only as an assistance in making a decision on selecting direction and a place of further education, but also as general work to increase students' readiness for social, professional, and cultural self-definition [2, p. 21]. According to I. Kuchma, profile orientation is a psychologic-pedagogic assistance for students in projecting further education in profile and non-profile classes of higher grade, institutions of primary and secondary professional education. As the author claims, profile orientation helps students to make decisions on selecting a direction of further training and creating conditions for increasing readiness of teenagers for social, professional, cultural types of self-definition [10].

Self-definition of profile directions, professional self-definition of general school students are ideas that are present in researches, devoted to pre-profile training of students and their future professional development (B. Abdyrkayimov [1], I. Kuchma [10], N. Fusunova [14], and others). Thus, N. Fisunova, while explaining meaning of organizing professional self-definition of German basic school students, claimed that her ideas emerge from interests, abilities, and achieved results. As the author says, a system of flexible response to labour market is being successfully introduced, and school programmes adjust to needs of real economy. A definition, introduced by N. Fisunova on that organization of professional self-definition among German general school students is a systemic, specially-organized, ordered, purposeful educational and non-

educational activity of educational and special institutions, aimed to reveal interests, inclinations, abilities of students; formation professionally-important qualities, development of a desire to grow professionally according to individual abilities and possibilities of social environment, becomes a significant concept of our research [14].

Contrary to the concept «professional self-definition», idea of «profile self-definition» has a different meaning. Thus, I. Kuchma thinks that profile self-definition is students' decision on their further education at the stage of transmitting from unified to differentiated (profile) education [10].

In scientific literature the idea «differentiation in education» is studied as a special form of organizing education that should consider typological individual psychologic features of students, imply special organization of communication between tutor and students, and also link to such organization of educational process in school that is characterized by principles of variability, intensiveness, individualization within its contents and methods of training. Among scientists who explain problems of differentiating education, we can outline S. Zubov, L. Kalashnikova, A. Popova, and others. We consider the fact that differentiation at the stage of pre-profile training in plays a key part in developing education, exposing creative abilities, and forming cognitive abilities of students in modern school.

The idea «conscious selection of training profile by a student», as shown by analysis of works, is also significant for the object of our research. Pedagogic support of profile selection for general school graduates is studied in dissertation by E. Efimova [6]. The author sees this process as a complex, high-technology system of open interaction between subjects of educational process, general school that should be aimed to create optimal pedagogic conditions for personal development of teenagers, and also provide for a conscious selection of further educational trajectory. In this case statistical data on that over 65 % of general school graduates do not orientate themselves in possible education profiles, and 71 % of parents consider their children as unready for profile education, draws our interest and proves inconsistency of the formed system of pre-profile education in modern conditions [6]. E. Efimova outlines factors that influence selection of profile by teenagers. These factors are conditionally divided into two groups. The first group combines objective factors, among which – opinion of parents, peers, and pedagogic school staff, need of labour market, financial compensation. The second group of factors that impact selection of education profile contains sub-

jective ones – inclinations, interests, traits of character, individual abilities, emotional-will settings, intellect [6]. Therefore, within the studied object of research, concepts and theories that relate with intellectual and creative gifts become close. Among those: theory of a «multiplicity of intellects» (G. Gardner), theory of competence as a display of many types of endowments (J. Raven), theory of existence of endowment forms that can be potential or hidden (Y. Babayeva), concept of creative endowment (A. Matyushkin), etc.

However, as analysis of works shows, if gifted children have natural inclination towards a type of development, their choice of profile responds to their expressed inclinations and abilities, for children with normal development a problem of conscious selection of profile links to problems with psychic health. Thus, we possess a data on monitoring health condition of students who go to profile classes, and on results that testify the fact that in terms of profile education decrease in time of non-educational classes does not take place. Such situation has a negative effect on health condition of teenagers. Y. Chernenkov, A. Serdyukov come to a conclusion: «Teenagers are not ready for an independent selection of profession in the end of the second stage, so the part of medical school personnel in preparing students for a conscious selection of job considering their health status increases. We should outline that in terms of selecting education profile according to parents' opinion, a disturbance in process of a teenager's socialization has been revealed, and it leads to decrease in parameters of its life quality according to scales «school life» and «communication», decrease in vegetative stability. Thus, regardless of education profile and motivation for its selection, all high-grade students have risk factors of psycho-somatic diseases» [16, p. 133].

Another term that relates with our research object – organization of pre-profile training of students is «professional socialization». Let us point out that most researches that study this idea refers to student youth (O. Irba, E. Kopytsya, Y. Kablinova, etc). Thus, the concept «process of professional socialization» is studied by O. Irba as a basis of development and self-realization of a person «that is linked to mastering labour knowledge and skills, professional language of communication, and formalization with a corresponding subculture» [7, p. 10].

Explanation of the category «professional socialization of scholars», developed by L. Probst also draws our interest. It is studied by the scientists as a conceptual construction that has its cross-cultural, specific professional, social, and economic character. As the author outlines, we should consider profes-

sional specialization as multi-parameter and societal phenomenon that consists of social interactions of individuals, social groups, social institutions in social-labour and professional activity, and provides for a development of professional culture in social division of labour [11]. Let us point out that the study by L. Probst covered students of high school, while the term «professional socialization» for general school students was introduced in a research that studied professional socialization of scholars in terms of inter-school training complexes (V. Blaschuk [3]). Thus, V. Blaschuk shows us that professional socialization of scholars is a process of non-strict technologic (methodic) management of means of professional activity. These means, according to the author, should provide for a formation of professional behavior, maturity, individual style within a forming person, as well as understanding of social meaning of professional labour and its simultaneous significance for itself as a possibility to self-assert in a social environment [3].

We can see that the object of pre-profile training of students in terms of scientific cognition carries put a special social function – orientation. And, therefore, pre-profile training of general school students can be called a system that directs students to select an educational trajectory that will allow them to make a successful selection of training profile in high school and within the system of professional education. Researches show that pre-profile training in its most general form is directing students of general school to realize their personal and professional interests that correspond to inclinations and abilities of a specific student. Within the system of pre-profile training growing generation should master the experience that has already been saved by an educational system and their society, in other words, master special competences at their achieved development level, realize the necessity to select educational profile that will influence their further personal and professional formation. Values and personal qualities, needed to solve problems that stand before future developing society, should be formed within the process of pre-profile training. It can be provided by special competences that serve as a starting point in dynamic life conditions and human activity.

Thus, we can define that pre-profile training is a process of forming values and personal qualities, formation of special competences among students, development of strategic view of further vital functioning from the point of differentiating interests, individual inclinations, and abilities of each student. This problem is included into the system of specific activity of older generation and is aimed to provide for making decisions and conscious

selection a future education profile by a new generation as well as professions that are necessary for the social development.

References

1. Abdykarimov B.A. Professional pedagogy: textbook / B.A. Abdykarimov and co-authors. – Astana, 2008. – 308 p.
2. Askarova M.A. Realizing model of continuous profile education in collage // Profile school. – 2011. – № 6 (November-December). – P. 20–25.
3. Blaschuk V.V. Personal and professional socialization of scholars in terms of inter-school educational complexes: dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – SPb., 2004. – 20 p.
4. Vyazemskiy E. Profile of education and life: From traditional model of school to pre-profile training and profile education // History. – 2007. – № 02, [Electronic source] <http://his.1september.ru/article.php?ID=200700205>.
5. Gera R.D. Professional socialization of scholars at the stage of pre-profile training: dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – Belgorod, Beldorod State University, 2008. – 22 p.
6. Efimova E.V. Pedagogic support of selecting education profile for general school students dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – M., Pedagogic academy of post-discipline education, 2011. – 225 p.
7. Irba O.S. Competence approach as a term of professional socialization of students-psychologists' personality: dissertation of candidate of pedagogic science [spec. 19.00.07. – pedagogic psychology]. – Kursk: Kursk State University, 2009. – 24 p.
8. Kravtsov S.S. Theory and practice of organizing profile training in schools of Russian Federation: dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – M.: Institute of maintenance and training methods of Russian Author Society, 2007. – 57 p.
9. Krivkykh S.V. Psychologic support of pre-profile training: Textbook, methodic guide / S.V. Krivkykh, N.N. Bukina / Ed. by S.V. Krivkykh, SPb, Scientific society of students «Express». – 2008. – 128 p.
10. Kuchma I.V. Pre-profile training within the system of supplementary education in school: dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – M.: Moscow Pedagogic State University, 2008. – 224 p.
11. Probst L.E. Professional socialization of school youth in modern Russia: dissertation of candidate of pedagogic science [spec. 22.00.04 – Social structure, social institutes and processes]. – Ekaterinburg, Ural academy of state service, 2004. – 43 p.
12. Project «models of profile education and pre-profile training. Search for optimal ways and means to increase their efficiency» / Head of project L.G. Korol. – Rostov-on-Don, 2010. – 36 p.
13. Pushkina O.V. Professional self-definition of students in terms of profile education. – 2009.
14. Fisunova N.V. Organization of professional self-definition of German general school students: dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – Belgorod, Belgorod state national research university, 2011. – 23 p.
15. Chepikova E.V. Pedagogic terms of forming profile direction of students' personality: dissertation of candidate of pedagogic science [spec. 13.00.01 – General pedagogy, history of pedagogy and education]. – Smolensk, Smolensk State University, 2008. – 23 p.
16. Chernenkov Y.V. Monitoring health condition of scholars who learn in profile classes / Y.V. Chernenkov, A.Y. Serdyukov // Saratov scientific-medical magazine. – 2010. – Vol. 6, № 1. – P. 130–133.

ACTIVIZATION OF CREATIVE ACTIVITY OF STUDENTS IN THE COURSE OF EMPLOYMENT ON PAINTING

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In article the maintenance of concepts of creative imagination and thinking of students providing selection main, the most essential and characteristic in the validity phenomena, a concrete definition and artistic image generalization is considered. The fine arts role in decisions of the major problems of the present stage of a development of education is defined.

Keywords: creative activity – the phenomenon difficult. Imagination and the thinking, providing selection main, the most essential and characteristic in the validity phenomena

Creative activity of students is one of priority directions in pedagogics. Increase of requirements to a role of teachers and their responsibility for young generation. Activity in conditions a modern society demands from the qualified expert of application of the widest spectrum of human abilities, development of unique individual physical and intellectual qualities. It also confirms which does necessary the account by our educational system not only today's requirements and manufacture possibilities, but also their changes in the near future. It is necessary to consider also increase of scientific character and creation of the new art means relieving the person from routine activity in area both physical, and brainwork. Taking into account it on one of the first places in formation there is a problem of preparation of youth to development of creative abilities that is mastering of new scientific and art activity, accelerates creative processing and generation of newer and useful ideas [1].

Psihologo-pedagogical and philosophical researches of art creativity of students shows that interest to these problems doesn't weaken throughout many decades.

Creative activity of students приводит to a conclusion that it represents unity of conscious and unconscious activity. The understanding of creativity recognizes that creativity is an activity of the person, reformative the natural and social world in.

Conformity with the purposes and requirements of the person and mankind on the bases of objective laws of the validity. Creativity as creative activity is characterized by originality (on character of realization and result), originality and socio-historical (and not just individual) uniqueness [1].

The first means that art should execute a role of one of ways of studying of the real world in life of a society and at the same spend certain sights, ideals, carrying out thereby the educational value. In sense of the decision of

this problem art creativity that life of e society without art is inconceivable [2].

The second problem of art – «to learn itself», that is to learn laws on which it is based, to study an inexhaustible source – the nature and life, laws of the image of reality and specific features of separate kinds.

At last the third – having seized nature, having learned its laws, the beginning artist should deepen constantly knowledge of laws of drawing, painting and a composition. Thus Chistjakov especially underlines that art is created by the person on the basis of the real, objectively existing validity and its laws, but at the same time necessarily and only «depending on the person».

On discipline painting Chistjakov looked as at a subject studying of the live form there is on of the knowledge parties in general; it demands the same activity of mind as the sciences recognized necessary for elementary formation that though we in don't prepare professional artists, however teaching should pass duly and to laws [1].

At painting teaching it is necessary to consider qualitative mastering of the reading and writing of prospect:

1. Preliminary to give to students simple and clear concept prospects, as the science following from one device of an eye and Relative distance of subjects. To give concept about a picture plane, about horizon, the point of view, a descent, a about a distance and other.

2. It is required at выполнении creative problems on painting to observe exact execution of necessary conditions of the theory linear and air prospects, namely: it is required to understand position of a picture plane.

At right angle to an axis of sight and with the point of view in the middle of this plane.

Consequence of the is necessity to explain its position picture plane concerning a copied subject on that the basis that the subject always remains in one position, and places it drawing rather variously change.

3. As not all students are equally talented, not all look at drawing on nature correctly, first of all, it is necessary to teach to look them properly. It almost the most necessary.

Therefore value of the teacher, and the main thing understanding it of art is exclusive, its abilities theoretically to comprehend and is resolute to put into practice the ideas.

The training problem is extraordinary interesting and many-sided, the teacher especially underlines prospects and spatial representation.

Activization creative activity of students by means of the fine arts the student can occur in that unique case if the training system is under construction on creative atmospheres. The student should from the very beginning of the training should divide into a creative part arising questions becomes very much an absolute obstacle.

Therefore, builds the system not on complication of statements-tasks, and on complication of methodical, creative problems which are put before students. Each separate task represented a new and significant step in this sense, to overcome which to the future painter it was necessary independently and necessarily creatively. The teacher from its part owed any exercise carefully and comprehensively think over, intelligibly explain from the point of view of the aims laid down in it and to achieve its full achievement.

The student always and – the creator, but at the same time its creative possibilities and freedom are based upon the concrete base of consecutive and objective studying surrounding. In a sense in it lives both the researcher, and the scientist. «The person typed constantly of impressions and deducing from them laws, can quite be the creator, because strength of mind – force of knowledge, its developments».

On a creative basis of painting penetrated all its pedagogical system, causing absolutely new and original approach to space giving. The student from the first steps to painting felt and understood itself the artist. Not the quantity of got knowledge and skills informed it eventually, new quality of the master. In each most simple and elementary exercise it faced necessity of the independent creative decision [3].

Agreeing with all above told, we it is necessary to notice that the technique of teaching of painting can serve as good help in teaching of graphic realistic art and in today. It can be applied not only at art schools, but also to take for a basis in teaching of realistic art. We do the basic accent on the direct free creativity of children put by the nature, acquainting with

laws of a composition and a variety the technician performed by creative works basically it is necessary to give the reading and writing of realistic art.

The esthetic perception is twisted in the general perception of the validity, is art-esthetic elements constantly are present at each certificate of dialogue with the world. It is known that emotional activity of the person is understood as a way of an estimation of actual requirement and probability of its satisfaction. The main function of thinking – knowledge of the objective reality abstracted from the valuable relation to it of the subject. But in art these forms of psychological activity in *займо* are conditioned: the emotional knowledge is intellectual, and intellectual emotionally. In spatial arts between architecture and the fine arts the emotional dominant in valuable judge of the learned is peculiar. In the spiritual maintenance expressed by architecture the intellectual beginning generated by a *tehniko*-constructive basis of architecture, and painting dominates, are turned to experience – as all concrete that causes an emotional dominant.

Ability of the student to think in a material in the professional environment characterize as spatial thinking. In an education system this problem name development of art volume – spatial thinking. Considering the nature of painting and specificity it is possible to develop successfully art volume – spatial thinking under condition of a purposeful pedagogical management with use of a special technique:

- Immersing on Wednesday of functioning of objects of the in detail – spatial environment and transformation in their image.

- Creation of creative atmosphere for a birth of an art plan and search of ways of its embodiment.

- Performance of a complex of creative tasks in volume of objects of the in detail-spatial environment.

As a result it is possible to create favorable conditions for formation spatial representation.

Addressing to professional language of painting, it is necessary for re-embodiment figuratively in new art quality [4].

In creative work since plane development as space element. Planes, various on the size, cutting space, created as though its material environment which could be measured, made subject, to give it any form, made such spatial forms of various subject. And color in which planes were painted by them, was extraordinary functional as allowed to strengthen space of the arising material environment.

The following stage of work had the purpose to give young artists to translate sensation of material space arising at them in understanding of a surface as to a space part. Here there is that surface should transfer those latent qualities which are pun in it by the nature. For example, Drawing by any paint is impossible simply or to cover a paper surface, to transfer space it is necessary to find such form of a surface, to use such color which in a figurative embodiment will tell that is a subject dimensions of a subject [5] possess.

Creative of activity of students by means of the arts will important pay attention to achieve to see in new sensation of the subject world and this constant reference of the artist to real living conditions. Creative activity of students in process.

The fine arts make leading positions in area of philosophy, psychology, and Art Studios on art education, esthetic education of students. Perfection of a technique of teaching of the fine arts research of known critics, historians and the ethnographers, developments of graphic creativity concerning questions.

References

1. Kuzin's V.S. – M.: Agar psychology 1997.
2. Markov M.E. Art as process. – TH.: Art, 1970. – 239 p.
3. Markov M.E. Art as process. – TH.: Art, 1970. – 239 p.
4. Medvedev L.G. Criteri of an artistic image estimation as the factor Developments of creative abilities of students. – Alma-Ata, 1990. – 68 p.
5. Medvedev L.G. formation of a graphic image on employment Studies. The grant for students HGF of teacher's colleges. – TH.: Edukation, 1986. – 159 p.

ON THE WORKING OUT OF THE POLYLINGUAL PERSON'S STRUCTURE

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The analysis of scientific researches in the theory of the education content and the theory of lingual and extralingual education has allowed to consider a level of learning of their basic problems to be a quite high: category «the education content», which plurality of types is determined by pedagogical theories, education models, a complex of purposes and the end results; concept of a lingual person as a key category of the theory of lingual education; concept of a secondary lingual person correlating with the theory of extralingual education. These scientific ideas testify the presence of a considerable complex of pedagogical approaches and principles being system-complete studied and purposefully interpreted have made theoretical base of polylingual education's conceptualization to allow defining essence of the notion «a polylingual person».

Keywords: the education content, pedagogical approaches, polylingual education, extralingual education, concept of a lingual person, secondary lingual person

The analysis of scientific researches in the theory of the education content and the theory of lingual and extralingual education has allowed to consider a level of learning of their basic problems to be a quite high:

- category «the education content», which plurality of types is determined by pedagogical theories, education models, a complex of purposes and the end results;

- concept of a lingual person as a key category of the theory of lingual education;

- concept of a secondary lingual person correlating with the theory of extralingual education.

These scientific ideas testify the presence of a considerable complex of pedagogical approaches and principles being system-complete studied and purposefully interpreted have made theoretical base of polylingual education's conceptualization to allow defining essence of the notion «a polylingual person».

The analysis of these theories has proved that the key moment at their working out is the interpretation of a person's category. Considering it from various points of view the scientists-educators, scientists-linguists, specialists in linguistic didactics deal with various sides of this phenomenon. But an original crucial point in terms of scientific workings out is a well-known thesis on the general purpose in pedagogics being an all-round person's development. Supporting this classical position and developing the theory of education content V.S. Lednev believes that its basic contours are defined by the very structure of a person and structure of activity [1]. Thus he considers the structure of a person in the course of «static» cuts and the activity structure as in respect of person's dynamics. The scientist proves the necessity of the analysis of person's structure in the theory of the education content by the fact that the requirement of all-round harmonious person's development has not got characteristics of the parties subjected to development yet. He believes that pedagogics' orientation to the expanded interpretation of a person is quite

defensible since the personality in pedagogics is considered in the widest meaning of harmonious development of all its natural and social united properties and the parties including physical formation. As a result, the scientist allocates three basic parties of a person relying upon the conception of an antientropic organization of systems:

- 1) *functional mechanisms of mentality* concerning the mechanisms of information perception, or sensor-perceptive; the thinkings carrying out information's transformation in some levels; memories; psychomotilities; autoregulations («I») of the highest level providing management of mental processes' and a person's behaviour and including the mechanisms of emotions, attention, will, etc.;

- 2) *person's experience* including such kinds of the content of acquired mental formations as knowledge, abilities, skills and habits (the 1st set of experience components); a person's orientation, cognitive, transforming, aesthetic, communicative and physical qualities (the 2nd set of experience components);

- 3) *generalized typological person's properties*, concerning character, temperament, abilities, ontogenetic peculiarities of development.

However, the scientist gives a notice about conditional abstraction of structural components because of personality is complete and indivisible. It is first of all. Secondly, the abstracted three «statistical» cuts are the fundamental ones as at the minimum number of general views all the components of a person's structure are covered on the united basis (on the conception basis of antientropic levels of the substance organization), but not the unique ones since other person's substructures can be allocated along with these components. Any substructure is actualized depending on a concrete context. Thus, the concept of lingual person is actualized in the theory of lingual education, and the secondary lingual person is in the theory of extralingual education respectively. It means these person versions are characteristic for the substructure that different from an invariant.

The start point for understanding of the lingual and secondary lingual person's content is these terms' consideration as the education results: lingual education in the first case, extralingual education – in the second.

The lingual person is reduced and presented as genetically caused liability to creating and manipulating by sign systems, as «a human» language correlate. Linguists believe that a lingual person is a set of linguistic skills, abilities, availabilities to realization of different complex speech acts classified by speech activity forms (speaking, auding, reading, writing) and by language levels (phonetics, grammar, lexicon) [2].

In the lingual person there are refracted philosophical, sociological and psychological outlooks at socially significant set of a person's physical and spiritual properties. According to it the content of the lingual person is defined by three aspects: a speech person, a communicative person, a lexical or ethnosemantical person. In linguistic tradition there «a lingual person» is realized as an individual psychophysiological properties' complex that allows it to make and perceive speech products. In this case a speech person is accepted to speak about [3]. If «a lingual person» is realized as a features' set of verbal behaviour of a person who uses language as means of dialogue, it will be right to speak about a communicative person [4]. At last, «a lingual person» is the national-cultural and fixed in lexical system prototype of a certain language's native speaker representing in total the world outlook attitudes, valuable guidelines and the behavioural stereotypes reflected in vocabulary. This aspect of a lingual person is formalized in a lexical or ethnosemantical person [5].

Sorting out these aspects has allowed defining the following components in the structure of a lingual person:

- *a valuable*, containing language world image and hierarchy of the spiritual representations realized in the course of language dialogue;

- *culturological*, including the rules of the verbal and nonverbal behaviour, determined by the facts of studied language's culture;

- *personal*, individually reflecting the psychological properties and socially typified person's qualities, representing in a complex a person's ability to speech and language activity.

To a pedagogical context this very linguistic structure of a lingual person can be applied for modelling of both the result and the process of lingual education.

Besides a structural formation of a lingual person the scientists-linguists mark out a hierarchy of levels in it. Yu.N. Karaulov considers these levels such as:

- zero level – verbally-semantic, including phonetic and grammatical knowledge of a person;

- the first level – logical-cognitive, presented by the thesaurus of a person where «world image» or «world knowledge system» are imprinted;

- the second level is an active-communicative one, reflecting a person's pragmatics, i.e. a system of a person's purposes, motives, aims and intentionalities [2].

Thus, zero level corresponds to degree of the ordinary language's possession, the first level also corresponds to ordinary language, but having already got a descriptor status (language units are ordered, have a strict hierarchical system of world knowledge), the second level corresponds to the language defining hierarchy of senses and values in the model of a person's world. The latest level is considered in linguistics to be the most difficult and also less clear by structure. To our opinion, this aspect of a lingual person is the most compound because of the psychological concepts of a person are not properly and purposefully projected to it. At the same time, it doesn't mean in any way that studying of the problem of a lingual person is an exclusive linguistics' prerogative. To Yu.N. Karaulov's opinion, a lingual person «penetrates all the aspects of language studying and simultaneously destroys the borders between the disciplines studying a person since it is impossible to study a person out of language» [2].

According to scientists' opinion it is disputable that a lingual person derives from the first level (not zero), and at the second level a lingual person merges with the social one. Concerning pedagogics, the problem of formation of the automated skills of typical designs' using is an interest subject at zero level, at the first level it is a problem of text's expansion by themes and semantic fields, at the second level it is equivalence of language means to communicative conditions of their using.

The content of lingual education is designed particularly depending on foreign languages' teaching.

Set of a person's abilities to extralingual communication at the intercultural level, that is an adequate interaction with other cultures' representatives, is defined by contemporary linguodidactics as the concept «the secondary lingual person» [6].

The secondary lingual person is a set of a person's lines developed by a verbally-semantic code of studied language's mastering, that is by «a lingual picture of the world» of the native speakers, and by «a global (conceptual) picture of the world» to allow a person to understand a new social reality. The developing by the trainees the properties of «the secondary lingual

person» who needs the foreign language «for life», «for dialogue in real situations» and who is able to communicate with other cultures' representatives, is, actually, a strategic target of foreign language's teaching [7].

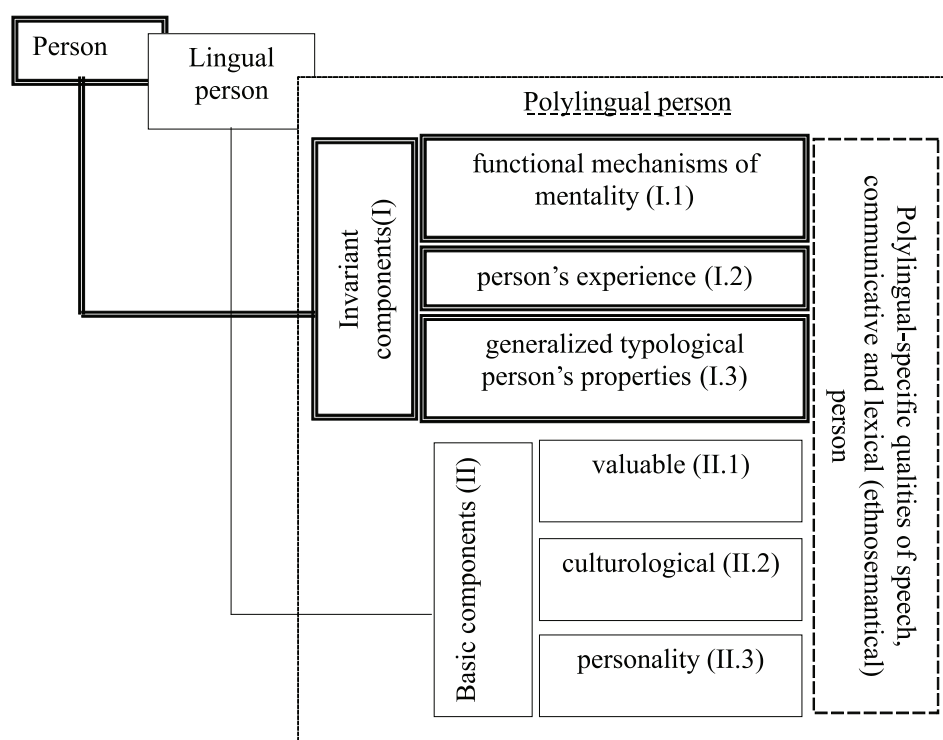
Concerning structure of the secondary lingual person we notice that it is identical to structure of a lingual person, with the difference that all the components have a bit different content characteristic which features are connected with not native, but a foreign language's learning. That is the structure of a lingual person represents in some way the base structure founded by sorting out structural components not only of the secondary lingual person, but also potentially possible variants of a lingual person. The polylingual person can full act as one of such variants.

In fact, supposing principal difference of the lingual, extralingual and polylingual education one cannot to eliminate the distinctions and their target aspects. Therefore it is possible to assume at elementary analogy level that the polylingual person is a purpose and result of polylingual education. According to content the basic difference of these education directions consists in quantity of studied languages. Then, the polylingual person having a base structure of a lingual person and characterizing each component – value, culturological and personal – assumes an interpretation of another

socioculture's world picture, learning of another linguoethnosociety's semantic guidelines, ability to make out similarity and distinctions among communicating cultures and to apply them in a context of intercultural dialogue. This concerns the secondary lingual person well. However, these characteristics are inherent for the secondary lingual person concerning only a native and one foreign language while these parallels are caused by several (more than two) languages for the polylingual person. This is our initial definition of the notion «a polylingual person» that to be deepened and added a bit later on the basis of analyzing its correlation with the concepts «a bilingual person» and «a polycultural person».

Thus, according to the pedagogics theory of targeting we have resumed to define the education purposes one should approach from positions of modern person's concept. One can assert on this basis that the purpose and result of polylingual education is the polylingual person having in its structure besides the invariant components of a person (functional mechanisms of mentality, person's experience, the generalized typological properties of a person), the base components of a lingual person (valuable, culturological and personal).

A category place «the polylingual person» can be visually presented in the hierarchy of contiguous concepts such as following (Figure).



General structure of polylingual person

Following the principle «from the general to the particular», we have defined logic of marking out of structural components of a polylingual person as the following gradation: structure of a person – «general», structure of a lingual person – «especial», structure of a polylingual person – «individual».

«General» in relation to «especial» and «individual» reflects the dialectics of «whole» and «particular».

Cognition evolution of dialectics of the whole and its parts shows some approaches:

- denial of correlation between whole and its parts;
- recognition of the whole as the sums of the parts;
- estimation of the whole as something greater than its parts;
- assumption of the superiority of a part over whole, i.e. a part is more than the whole (so-called «the Principle of Pareto»: small parts in a set turn out a much more importance than it corresponds to their relative proportion);
- interpretation of the whole and its parts as a united organic integrity (according to K. Lorents – «system of the bilateral causal relationships forming a difficult network») [8].

Holding the latest point of view, we notice that this position is complicated by ranging of the concepts «system whole» and «organic whole», the first one concerns interactions of parts as a whole, the second one – internal interrelations. According to an organic paradigm there is admitted the primacy and priority of the whole operating with its own parts simultaneously being inherent both a certain specialization and a functional interdependence. And character of these qualities is set by the whole instead of parts' interaction.

In other words, the structure of the whole (a person) in the part structure (a lingual person) at the first integrity level represents a base component, at the second level the structure of the whole (a person) in the part structure (a polylingual person) represents an invariant, the part structure of the first level (a lingual person) becomes a base component. Every time a base component results from invariant specialization, thus absorbing all its properties.

Concerning the concept of «the secondary lingual person» we notice that it appears arranging with the last concept at the level in the hierarchy of «a person», «a lingual person» and «a polylingual person» categories and occupied in this hierarchy, but not identified in content. As it has been already marked, the concept of the secondary lingual person correlates with extralingual, but not polylingual education.

Thus, we consider the concept of the polylingual person, first of all, as result of polylin-

gual education, secondly, as several languages' carrier representing in terms of structure:

- the speech person – a complex of the psychophysiological properties allowing to the individual to carry out speech activity in several languages simultaneously;
- the communicative person – a set of abilities for verbal behavior and using of several languages as means of dialogue with different linguosocieties' representatives;
- the lexical person, or ethnosemantical – symbiosis of world outlook attitudes, valuable orientations, behavioural experience integrally reflected in the several languages' lexical system.

We consider necessary to specify the formula «several languages». Certainly, the native language and one foreign language by all means are presented in this list, but it is peculiar in a greater degree for «the secondary lingual person». Besides it, «several» means «more than two» otherwise one could confine oneself to the concept «bilingual person» or a widely used word «bilinguals». In the modern world there are not practically monoethnic and hence, monocultural and monolingual communities. It means that the people belonging to various ethnolinguocultural groups do not always act as the foreigner relative to each other. In other words, countrymen may be found to be the representatives of different ethnolinguocultural groups. At the same time ones of them are natural carriers of minority languages, others – of majority ones. The last, as a rule, possess a great using sphere. Hence, referring to polylanguage it is appropriate to speak about the languages actively functioning in the community. Thus, there are such languages in Kazakhstan owing to the historical factor: the Kazakh language as state one, Russian as language of international dialogue, and intensively raising functional activity of English language as integration tools into world economy.

Correlating with the secondary lingual person the bilingual person who fluently knows two languages simultaneously can be presented not only by native and foreign languages, it can assume another binary schemes, as that: the minority and majority languages, two majority ones, majority (not native) one and foreign one etc. The whole point is that the polylingual person has a wider spread of a languages' combination.

Sorting out the invariant components in the polylingual person's structure is based on the theory of education content (by V.S. Lednev), and base components are designated according to the lingual person's concept:

- a) a valuable that contains a language image of the world and hierarchy of the spiritual representations realized in the course of language dialogue;

b) a culturological that includes the rules of verbal and nonverbal behavior determined by the facts of studied language's culture;

c) a personality that individually reflects psychological properties and socially typified qualities of the person, representing in a complex the person ability to speech and language activity.

Thus, the polylingual person is an active several languages' carrier representing: the speech person – a complex of the psychophysiological properties allowing to the individual to carry out speech activity in several languages simultaneously; the communicative person – a set of abilities for verbal behavior and using of several languages as means of dialogue with linguosocieties' representatives; the lexical person, or ethnosemantical – symbiosis of world outlook attitudes, valuable orientations,

behavioural experience integrally reflected in the several languages' lexical system.

References

1. Lednev V.S. Soderzhanie obrazovaniya: suschnost, struktura, perspektivi. – M.: Vysshaya shkola, 1991.
2. Karaulov Yu. N. Russki yazyk I yazykovaya lichnost. – M.: Nauka, 1987.
3. Boghin G.I. Model yazykovoi lichnosti v eyo otnoshenii k raznovidnostyam tekstov: Avtoref.dokt.diss. – L., 1984.
4. Suhii S.A., Zelenskaya V.V. Reprezentativnaya suschnost lichnosti v kommunikativnom aspekte realizatsi. – Krasnodar, 1997. – P. 64.
5. Karassik V.I. Yazykovoi krug: lichnost, kontsepty, diskurs. – M.: Gnozis, 2004. – P. 8–9.
6. Haleeva I.I. Osnovy teorii obucheniya ponimaniyu inoyazychnoi rechi (podgotovka perevodchika). – M.: Vysshaya shkola, 1989.
7. Elizarova G.V. Kultura i obucheniye inostrannym yazykam. – SPb.: Izd-vo «Soyuz», 2001. – P. 4–7.
8. Lorents K. Uprazhneniye chelovechnosti. – M., 1983.

Materials of Conferences

**REFRESHER TRAINING
FOR THE TEACHING STAFF
OF THE MEDICAL UNIVERSITY
IN TERMS OF THE COMPETENCE-BASED
APPROACH**

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The competence-based approach in higher education appears as updating the content of education in response to the changing socio-economic reality (I.D. Frumin), as a generalized condition of a person's ability to work effectively outside the educational situations (V.A. Bolotov, V.V. Serikov) and ranks first not just the awareness of the human but the ability to solve the problems of specialist's practice which make a graduate of the University mobile and competitive in the employment market. In Russia the training of a specialist who meets modern requirements is based on the Federal state educational standards of the 3-rd generation implementing competence-based model. The transition from the qualification model of the graduate to a competence-based involves changing of all the components of the educational process: the goal-setting (goals and tasks of education), procedural (the style of interaction between teacher and students, the educational content, forms, means and methods of training) and, of course, control and evaluation which include the forms and methods for the training results control [4].

The introduction of the state educational standards of a new generation into the university practice is possible only with the implementation of programs of continuous education of teaching staff of a higher medical school. Intensive modernization processes in the system of higher education in Russia, adoption of the new Federal law on education, the competitiveness of the educational services market explain the need for competence-based educational process aimed at the improvement of professional skill of teaching staff members. Modernization of the refresher training program for the teaching staff of the Volgograd State Medical University was held in the framework of the University participation in the international project TEMPUS IV in section «the System of lifelong learning for teaching staff of medical schools».

Refresher training for the faculty members is organized by the Department of social work with a course of pedagogy and educational technologies in the context of the Program of innovative development of the Volgograd state medical University (VolgSMU) for the years 2013–2017 which emphasizes «the integration of science, professional education, medical and industrial activities

which ensures the training of specialists needed by the society».

The European qualification requirements for the faculty members of higher medical schools and the Russian system of qualification requirements created on their basis were taken into account in the process of development of a continuing education program aimed at improving psychological and pedagogical skills of the VolgSMU faculty members. As international experience shows, the framework of qualifications is formed by establishing clear links between the requirements of the spheres of practical work and the vocational training. In these terms the system of professional education, focused on the education outcomes, is based on three types of standards: professional, educational standards, and those for assessment. A portfolio of psychological-pedagogical competence, including a chart of competence, component composition, content structure and descriptors of the competence development level was the guideline in the refresher training of the VolgSMU faculty members.

A program of continuous education of the VolgSMU faculty members in the system of psychological and pedagogical refresher is based on andragogic model, since the model is appropriate for the training of adult learners, and teaching staff members meet all the criteria. The principle of flexibility and the variability of the training program is implemented in the program through constant monitoring of educational needs of the listeners by means of questionnaires and consultations with the audience. Among other methods of training there are discussions of specific cases (case-study), problem lectures, business games, brainstorming, work in small groups, trainings, regulated discussion, workshops, etc.

Self-improvement starts with knowing yourself, therefore in classes of the psychological module teaching staff members perform a self-test to evaluate pedagogical skills, the style of interaction with students, the evaluation of the ways of responding to conflict (K. Tomas), self-control in communion (M. Snyder), level of communicative tolerance. We are glad to note that collective portrait of the VolgSMU teaching staff (sample of 143 people) is characterized by a high level of pedagogical skills with a predominance of democratic style of communication, high-level communicative tolerance. The predominance of a high level of self-control in communication was demonstrated by representatives of the clinical departments while representatives of the non-clinical departments demonstrated the average level, and a compromise was the predominant way of responding to the conflict.

Teaching staff members were given a task to use of the acquired experience, in particular, on interactive methods in teaching students (the principle of educational outcomes actualization). They develop psychological-pedagogical competence, which involves mastery of the concept-categorical apparatus of pedagogics, contemporary methods of training and education, acquiring the ability to apply modern methods of performing lectures and seminars in the pedagogical process of the medical university. For professors and the heads of the VolgSMU departments the program includes workshops for discussion of the most urgent issues related to the implementation of innovative educational approaches.

In the course of training in accordance with the andragogic model, teachers acquire new experience, which is immediately used. They improve the educational process in their departments, undertake a collective assessment activities on the analysis of the obtained results and share their experience with the colleagues. Training does not involve marks for the listeners on the results of practical training. One of the main mechanisms of diagnostics of the new experience development is performing of a final qualification work. The course attendees provide reports at the final workshop. It is expected that in the second part of the report the speaker would reflect the introspection of his own teaching experience and submit his practice-oriented pedagogical guidelines, including the use of active and interactive methods, case- and gameplay methods of teaching a particular science.

Discussions of the differences between the knowledge-oriented paradigm of higher education and the competence-oriented paradigm are organized in classes. The competence experience becomes the basic category and includes the interiorized knowledge not only about the «what to do», but also the «how to do», that is, abilities and skills, which may be formed, transformed and become a consequence of purposeful training. Therefore, initially, at the design stage of the refresher course we solved a question on the choice of the necessary types of competence experience and its implementation into the seminars. The revealed types of competence-based experience are the following: the experience of search of educational and scientific information, operational experience, experience of work with the text, the experience of transformation of information into knowledge, the experience of self-assessment and reflection, experience of developing educational strategies, experience of creative research activity, experience of communication and cooperation, the experience of the presentation of pedagogical knowledge, abilities, skills, etc.

It should be noted that the types of competence-based experience necessary for a faculty member of a medical university continue to be refined. We believe that the organization of refresher training for the faculty members of higher educational establishments can be positively evaluated if in the

course of the academic process each trainee had the opportunity to carry out activities, which allow to acquire these types of experience. The use of the competence-based experience in practical pedagogical activity characterizes both the process and the current results of the faculty members training. Report on the work may be presented by the attendees in two forms: in the form of a speech with the analysis of a practical class carried out with the use of innovative method or in the form of video presentation of the practical class. Each report is followed by a group discussion.

Thus, the process of implementation of the state educational standards of the third generation into the university practice strongly requires the search for innovative approaches in psychological-pedagogical support of educational process and development of motivational and methodical readiness of the faculty members. The formation of a personality of a competent specialist in the sphere of medicine is considered to be the main task of the higher medical education due to the changing social conditions and requirements.

References

1. The qualification requirements for faculty members of the higher medical educational establishments / ed. by Lopanova. – Omsk: Polygraphic center KAN, 2012. – P. 6.
2. Competence-based learning in higher medical school: Teaching guidelines / Artyukhina A.I. [and coll.]; ed. by E.V.Lopanova. – Omsk: LLC «Polygraphic center KAN», 2012. – P. 21.
3. Program of innovative development of the Volgograd State Medical University in 2013 – 2017 / ed. by V.I. Petrov. – Volgograd: Volsmu, 2012.
4. Stepanova I.P., Ganzina I.V., Grigor'eva M.V. Change of the system of control of learning outcomes in the context of the transition to a competence model of a graduate of the university // Psychological-pedagogical aspects of the activity of the medical university staff member in conditions of continuous education / ed. by E.V. Lopanova. – Omsk: LLC «Polygraphic center KAH», 2012. – P. 93.
5. Programmes of advanced training of medical university staff members. Examples of training programs: methodical guidelines / N.B. Vodolazsky, N.A. Tvorogova, T.Sheffer, A. Burger, T. Potecher. – Omsk: LLC «Polygraphic center KAH», 2012. – P. 7.

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PERSONAL AND PROFESSIONAL ENHANCEMENT UNDERLYING PROFESSIONAL AND SUBJECTIVE ATTITUDE OF MEDICAL STUDENT

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Nowadays when the higher professional training system is undergoing modernization, students' professional competence and their personal en-

hancement comes to the fore in the planning and organizing the training process.

A well-formed professional and subjective attitude is a factor underlying a student's personal and professional enhancement as well as self-enhancement. However, literature on research in the sphere of education yields a rather vague idea of the role of students' professional and subjective attitude in their professional and personal development and in the process of training a competent medical specialist.

Our idea of a student's professional and subjective attitude implies an awareness of oneself as a subject trained for a profession where mastering professional skills and knowledge is coupled with self-development of professional and personal qualities and traits. To enhance the development of professional and subjective attitude in medical students we have developed a technology based on three modules: the professional and subjective attitude model, the structural and functional model of its development, and the process model substantiated with methodological support. We also determined the stages of developing the professional and subjective attitude (preliminary stage, reflexive-operational stage and corrective-evaluative stage) and their methodological support.

The objective of the preliminary stage is to guide the students to understanding the essence of their chosen profession, its specifics; getting them motivated to developing the professional and subjective attitude and to mastering the profession.

The reflexive-operational stage is aimed at developing reflexion, perfectionism, applying the professional and subjective attitude to study, educational medium and real-life situations; including the students into the process of personal and professional enhancement, self-education and self-control.

The objective of the corrective-evaluative stage is to learn analyze the maturity of the professional and subjective attitude and to develop corrective measures when its maturity is unsatisfactory. When developing the corrective-evaluative stage we also determined the criteria and degrees of maturity of the professional and subjective attitude (optimum maturity, admissible maturity and low maturity). As for the criteria that allow an estimation and analysis of the student's professional and subjective attitude at each degree of its maturity, we singled out such criteria as independence in pursuing the cognitive process, readiness for self-cognition and self-enhancement, the extent of awareness in choosing the profession, the extent of maturity of professional orientation.

To reveal the extent of maturity of each component in the model of the professional and subjective attitude, we developed a pool of diagnostic tools; some of them are our original developments. The technology of forming the professional and subjective attitude in medical students belongs to the technologies of actualization of the potential of persons involved in the training process; its use is integrated into the training process. We believe that

implementation of the technology of developing the professional and subjective attitude in medical university students allows professional and personal enhancement of students, which elevates the quality of training outcomes.

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MODERN TRENDS IN EDUCATIONAL PROCESS DEVELOPMENT

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Modern society was chosen informatization of all areas of activity, including education, as its path of development. Implementation of informational – communicative technologies (ICT) is conditioned by a number of reasons.

First of all, ICT can make provision of material more visual. Therefore, introduction of ICT into education helps to increase level of student's mastering.

In modern world a technology is replaced with another technology, a number of skills and amount of knowledge that a man needs to be successful has increased. So, using ICT in order to increase education quality is a priority. It allows a person to adapt to modern society more quickly, self-develop and respond to the demands of time. If a society changes, principles methods of enterprises' work become technically more ultimate, improvements in education must be aimed to correspond with the requirements of modern industrial society.

Besides, a necessity to introduce ICT into the educational process is outlined by international experts in reports of UNESCO. These reports express the main idea that new technologies must provide for the creation of a better world, where each person will benefit from the achievements of education, science, culture, and communication. ICT make it possible to discover absolutely new methods of teaching and training, thus, it is so important to introduce this direction into the education process.

The twenty-first century sets complex objectives before the humanity:

- due to the accumulated knowledge that is based on informational-telecommunication technologies, it is necessary to create a new strategy to develop the modern society that is different from ones, used before;

- development of the society forms from a development level of each individual. It is impossible to build intellectual, thinking society without developing the majority. That is why fundamental education must be aimed to develop abilities and skills of each person;

- the closest relation between the level of a nation's prosperity, national safety of a state, and terms of education makes it necessary to use ICT in the studied area.

At the modern stage ICT is developed sufficiently to use it in educational process in its full scale. Everyone knows how expensive and difficult it is to equip laboratories of higher educational institutions with all necessary technique. Apart from that they need to be provided with tools and consumables. It is necessary to maintain facilities so they work efficiently and, the most important, are safe for health and lives of students. Besides, modern technologies develop in such powerful rates that it is difficult to catch up with it, buying new equipment constantly.

It is much easier and, what is important, cheaper, and more effective to implement ICT as an analogue of technical laboratories in an institution of higher education. Similar multimedia laboratories must meet such requirements as visual clearness, activeness, have a systematized educational course, and be consecutive, they also must have an individual approach to a student. Computerized multimedia technologies that stimulate educational process meet these requirements. Companies that work with equipment of various complexity has already been using such kind of ICT while training specialists to work with the most complex network equipment, model operations of technical processes management systems, etc. One of the main characteristics of such systems is their visual clearness. As we have already mentioned, the main goal of an educational process is to interest a student, make him eager to master new skills and knowledge. It is possible if ICT is used. It is known that computer games draw a great interest of a man. It happens because games have bright and colorful interface that draws one's attention. We should make use of this observation and, using ICT in educational process, make educative programmes bright, colorful, and interesting. The time has come when computer technologies can not only interact, but also develop. Nowadays a great number of game simulators exist. It is necessary for institutions of education to take such kind of computer multimedia technologies into work. Such simulators are used while training aviators, but other technical specialties also require attention and modern approach while training graduates. If such kind of multimedia technologies is introduced along with digital textbooks and presentation lecture materials without which modern educational process cannot be imagined, the level of graduates will increase dramatically. Without a doubt, it will help to increase the competitiveness of our graduates not only within our country, but also outside of it.

Considering an increasing interest to receiving education with usage of distant access we cannot but mention this direction of ICT that is used in educational process. In terms of the development of market relations in the area of educational services we should mention that introduction of distant education will become a necessary condition for an institution to increase its competitiveness not only within the country, but also outside its limits. The distant form of education costs less for institutions

of education and it allows indigent groups of population to receive an education, and it is a support for programmes of social development.

Possible social-economical results of implementation of distant education in institutions of higher professional education are:

- increase in availability and quality of the higher education services due to a possible decrease in prices for educational services and broadening access to the potential of the leading institutions for population, and also an ability to receive a prestigious diploma for students of distant regions who have no ability to receive full-time education in these institutions;

- increase in knowledge level, and, as a result, intellectual potential and quality of specialists;

- increase in inner efficiency of an institution functioning due to decrease in temporal costs of a tutor for his routine work and overall economy of an institution's expenses.

Development of the informational area is mainly defined by an emergence of computer systems and global telecommunication networks. These very means have become the main links of planetary infrastructure that connects all humanity. An example of a good realization of ICT is an emergence of internet – a global computer network with its practically unlimited abilities to accumulate and store information, provide each user with it individually. These abilities should be used to create national computer scientific-educational network. Development of national computer scientific-educational network can provide for standardization of education and establish a mass access to educational resources of high quality. The humanity has realized the necessity to establish such network for many decades, and now we have all necessary technologies to introduce it into the educational process.

Everything mentioned above proves that an active introduction of ICT into the process of training students must become one of the prior directions in development of modern education.

References

1. Tikhonov A.N. Informatization of education and science. – 2009.
2. Universal report of UNESCO on communications and information. – 1999–2000 – M., 2000. – 168 p.
3. Yakovlev A.I. Informational-communicative technologies in education. – 2001.
4. Agaponov S.V., Jaliashvili Z.O., Krechman D.L., Nikiforov I.S., Chenosova E.S., Yurkov A.V. Means of distant education // Methodics, technology, instruments. Series «Master of solutions». – SPb., 2003. – 336 p.
5. Internet training: technologies of pedagogic design / Ed. Candidate of pedagogic science M.V. Moiseyeva. – M., 2004. – 216 p.

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FORMATION OF COMMUNICATIVE COMPETENCE IN MEDICAL UNIVERSITY

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In this article reflects the issues of formation of communicative competence of students of medical universities, The main indicators and the essence of the communicative competence of the future doctor, and it was developed model of communicative competence, taking into account the gradual learning throughout the educational process.

Relevance of the problem development of communicative competence of physicians has been recognized in the 70 years of the last century. Currently, communication skills are understood as a phenomenon involving many psychological parameters. Among them – the knowledge of doctors themselves and their patients, ability to perceive and evaluate their colleagues, the capacity for self-regulation, ability to build relationships with people and flexible respond adequately to the difficult clinical situation, possession nonverbal and verbal communication skills, and more [1].

Modern social conditions and social needs reveal the need for a communication culture of a medical student. Taking into account that the most important factor determining the success of treatment is the interaction between doctor and patient, the development of communication skills is especially necessary. Competence in a broad sense is interpreted as a high level of social and practical experience of the subject, the level of training of adequate social and individual forms of activity that allows the person in their abilities and social status successfully and effectively in society. Important part of the doctor is not only his knowledge and skills, especially professional thinking, and personality, ability to communicate with the patient. Therefore the professional competence of doctors includes not only special medical training, human culture, but also social and psychological aspects of his personality, his value orientation, communicative competence [2].

In disclosing the content of the various components of competence allocated: preconditions of competence (skills, talents, knowledge), human activities (work) as a process (the description, structure, characteristics, attributes); performance (fruits of the labor, changes in the objects of activity). Analyzing different definitions of professional competence can be concluded that they are generally reflected the idea that this is one of the main characteristics of the person, the owner of which is able to achieve high professional results [3].

In sociological studies on the analysis of the main features by which patients evaluate the skill level of the doctor notes that all put forward indicator «relating to the patients», the second – «the

results of treatment of patients» and experience, patients' feedback, personal qualities doctor (honesty, diligence, courtesy, etc.). Indicators such as the formation of a doctor (including the depth of specialization) in seventh place among the enumerated grounds. All this indicates not so much about skill, but about the competence of a doctor [4].

Communicative competence of doctor in a special sphere includes understanding and interpretation of technical terms and concepts (example: in a conversation with colleagues, doctors of different specialties, nurses, and people who are not related to medicine), understanding of verbal, formal (example: formulas, graphs) and non-verbal means (facial expressions and gestures in a conversation with the patient), skillful handling of a specially prepared material [5].

The main indicators of the communicative culture of medical worker are in the emotional sphere is empathy (understanding the relationship of interlocutor to understand what he says, and to the most situation of communication, and help the other party in the expression of feelings and desires, message about their own feelings, close observation of non-verbal reactions partner, demonstrate understanding of the other's feelings), in the cognitive sphere – reflection (demonstrated commitment and desire to listen to the interlocutor, checking the accuracy of what he heard, clearing the rational component of hearing; self-correction, encouragement, self-esteem, and evaluation of others), in a behavioral sphere – Interaction (planning upcoming conversation; take the lead in the conversation, the organization holistic contact; giving personal character interaction, settlement of conflicts and the proposal of joint action, discussion, harmonization, clarification and information transfer, ethical representation of interpersonal relationships) [2, 5].

Professional and medical communication is a system (receptions and skills) organic socio-psychological interaction of doctors and patients, the content of which is the exchange of information, the provision of therapeutic effects, socializing with the means of communication.

Communication in the medical sphere is, first, as a means of solving medical problems, and secondly, as a socio-psychological support of patient care, and thirdly, as a way of organizing physician-patient relationship to ensure the success of the treatment process. A doctor in the activity must implement all functions of communication – to act as a source of information and as a person knowing the other person or group of people, and as an organizer of community activities and relationships) [6, 7].

Modern doctor should be able to create and maintain a valid therapeutic and ethical relationship, use effective listening skills, to request and provide information, and work effectively as a member or leader of a team of health. According to the latest ideas, professional competence – it is habitual and judicious use of communication skills, knowledge,

technical skills, clinical thinking, empathy, values, and reflection in daily practice doctor [6].

For the development of communicative competence now developed model of communicative competence of students that seeks to respond to a clear definition of the important components of the communicative competence, based on the goals, objectives and actions, and differentiated approaches to effective teaching of communicative competence through the gradual training of students. For the successful formation of meaningful skills and then evaluating their levels of formation established, the requirements for experience, knowledge and skills necessary to achieve the appropriate result. In connection with this state, the following ways to implement new methods of training: the training of students' communicative competence in stages throughout the process of study at the university, the planning process of the formation of meaningful competencies with their subsequent evaluation of formation, setting levels.

In itself, the development of communicative competence involves learning from entry level to the subsequent base, systems and specialized communicative competence. The methods of assessment of competence at each stage of training. Provides monitoring of the development and evaluation of communicative competence, methods and forms of teaching with each course complicating their level.

Thus, the primary purpose of teaching communicative competence is to improve the training of medical specialization and their compliance with the demands of modern conditions (market) through the creation of an enabling environment at the university for a free and informed choice to train future professional activity, personal learning paths, the direction and the profile of training required qualifications according to personal interests, educational needs and the needs of the labor market. New approaches to the development of communicative competence will improve the effectiveness of the formation of psychological competence of doctors in university teaching.

References

1. Model of medical education Kazakh National Medical University named S. Asfendirov – communication skills of the graduate. – Almaty: KazNMU S.D. Asfendirov, 2011 – 126 p. Theoretical justification of the communicative competence M.A. Asimov p. 5.
2. Gerasimenko S.L. Improving communication culture in the modern university.
3. Dubrova V.P. Reflections on the healing arts, or social and psychological factors of the success of the physician // Medicine. – 1999. – № 3.
4. Efimenko S.A. Sociology of the patient: Author. dis. ... Dr. sociological Science. – M., 2007. – 46 p.
5. Tsvetkov L.A. PhD. The Dissertation. Communicative competence of doctors pediats. – 1994.
6. Model of medical education Kazakh National Medical University named S. Asfendirova – communication skills of the graduate. – Almaty: KazNMU S.D. Asfendirova, 2011 – 126 p. The trajectories of the communicative competence p. 24.

7. Petrovskaya L.A. Competence in communication. – M.: Moscow State University Press, 1989. – 216 p.

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SOME ASPECTS OF ANDRAGOGY AND PEDAGOGIC DESIGN IN TRAINING ADULTS

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The article studies special features of training adults in modern conditions of transiting from applicatory-knowledge paradigm towards practice-directed one. A necessity to create specialized educational recourses that will be addressed to an adult audience (traditional printed and digital materials) is pointed out.

The concept of life-long training has become common throughout the world. Defining parts in realizing this concept belong to education of adults that implies a single complex of processes of formal and informal training that provides for a development of intellectual abilities of a man, improvement of his professional competences and personal qualities [1]. Besides, training activity of adults takes place at the background of their participation in productive, social, household areas of life.

The studied category of students has a number of social-psychological features that require a development of certain pedagogic and technological methods of education, special pedagogic design of constructing training disciplines, forms and methods of controlling training achievements [2]. Special features of an adult audience define different criterions of a tutor's professionalism.

An adult apprehends training information according to special laws, compared to a recent scholar. The former needs a short, informative, and efficient course. He needs to train consciously, follow a course on purpose, clearly realize the necessity and urgency of his work, has a possibility to control the process of his education, work in an accessible and convenient time regime, see results his work at any stage of his course.

According to principles of andragogy, the leading part in an education process belongs to the learning adult. As a formed person, he puts specific goals before himself and seeks their independent achievement. An adult is characterized by such behavior features as independence, responsibility for the made decisions. Finding himself in the position of a learner, he suffers a certain psychological dis-

comfort that is defined by the necessity to accept a submissive state in the process. A special character of relations between subjects of educational process that is formed according to ideas of equality, confidential communication, creative collaboration, can provide for a solution of this problem. A key to success lies in trust to a pedagogue who serves as an advisor, manager, assistant, curator, tutor.

Usually, adult students are characterized by a high motivation for training. They understand the necessity to increase their level of education, consider education in a university or an institute as an important condition of forming an individual trajectory of their career. Therefore, they are demanding towards results of their training. It requires clear objective setting in mastering a discipline in the beginning of a course, explanation of urgency and practical value of the mastered knowledge.

Nowadays, practice-oriented approach towards training is acknowledged as the basic in process of reforming and upgrading educational system [3]. A necessity to replace informational-reproductive education with problem-methodological type of it (from translating knowledge towards training to master it though overcoming intellectual obstacles) is defined by requirements of modern innovative industry. A modern specialist has needs not knowledge itself, but an ability to use it in solving specific situations and problems that he faces in professional activity and life. In this case, a main duty of a tutor is teaching methods of independent mastering of knowledge, "training to learn" becomes his prior objective. A direct pedagogic guidance is being replaced by an indirect type of it, training process comes to a form of self-education.

A content component of each discipline should be clearly directed towards professional interests of students, and the material should be adapted to their level of perception. Contents of any science have theoretic and applicatory components. Theory and practice are single and inseparable, they develop along one trajectory. A skill to re-construct scientific information into training in a methodically literate way forms a component of a tutor's activity. Theoretic and applicatory knowledge have different nature. Traditional knowledge paradigm implies a theoretic way of organizing training information – mastering any material or a discipline according to logical structure of a scientific knowledge. However, first of all, modern students require skills and knowledge that have high applicatory value. Of course, subjective knowledge remains a part of the process. However, methodic of reproducing knowledge moves to the background, while practice-oriented, competence approach occupies the leading part. This fact defines the need for a high interactivity of a training process. Teaching adults must be applicatory, practice-oriented. A suggestion to master some general abstract model, and then train to use it in specific objects and real systems causes a reasonable protest. On the other hand, training at

specific examples and real systems allows us to create a general model consciously. An adult masters knowledge more efficiently when it is presented to him as an example of productive or life situation. Interactivity in education becomes an objective necessity.

It is psychologically important to provide an adult student an ability to select means and technologies of training. Obviously, the same information can be apprehended differently by different people. Besides, everyone has his own preferences regarding sources of information. Some tend to look through a traditional textbook. Some other people prefer e-texts that are supplied with a number of illustrations, including video inserts. Others can consider live communication with a tutor the only efficient way to master a material. Variability of training means and pedagogic technologies (e.g. simple textbooks and module-structured e-books, traditional audience course of lectures, online video lectures, etc.) allow one to achieve a high efficiency of education.

The described pedagogic principles have been realized in practice [4]. The author of this text has 40 years of experience of pedagogic work with adults who learn in a university without leaving their professional activity. Exclusive methodic of training general technical speciality students in general-chemistry has been developed and introduced into the educational process. Textbook «Basics of general chemistry for independent education» (2012, St. Petersburg) and e-book «Chemistry» (LMS MOODLE, <http://www.spmi.ru/>) have been developed especially for this category of students. Textbooks have been constructed considering the described problems. Training information is structured into modules. Each module is completely autonomous. It contains training material of various levels of detail, supplied with examples, texts, control questions. When a module is complete and the control test verifies its successful mastering, a student can transit to the next one. Explanation of concepts and terms can be found in glossary.

Usage of modern information-communicative technologies of training (ICT) [5] allows us to solve many problems that relate to specific features of training adults. Organization-pedagogic model of training in terms of using ICT provides students with a high independence level, gives them an ability to project their individual trajectory of education, plan their work according to a level of their business in other fields of activity, master training courses in an accessible temper. Digital training contents are supplied in a structured form as separate training modules that allow one to master a subject systematically. Methodists-tutors are there to provide operative organization assistance. Individual consultations with a tutor on training subjects are easily realized via video-conference, Skype, e-mail, chats, forums. Lecture courses and virtual laboratory practices are available in the Internet (e.g. at YouTube), on CD,

DVD, etc. Efficiency of work is evaluated as a student progresses in a subject via an organized control of achievements (computer testing). Score-rating system allows one to evaluate the received results in a comparison mode. Thus, a student controls the process of his education himself.

References

1. Knowles Malcolm; Holton E.F., Swanson R.A. The adult learner: The definitive classic in adult education and human resource development (6th ed.). – Burlington, MA: Elsevier, 2005.
2. Deb Peterson. 5 Principles for the Teacher of Adults // Teaching Adult Learners <http://adulted.about.com>.
3. Press I.A. Competence approach as a basis of forming a system of practice-directed training (thesis of report) // Modern education: contents, technologies, quality: materials of the XVII international conference. – Spb.: St Petersburg state electrotechnic university, 2011. – Vol.2. – P. 149–151.
4. Press I.A., Ryabova M.N. Experience of organizing integrated form of training students in an educational institution // Bulletin of St. Petersburg university. – Spb.: St. Petersburg state university. – Series 12, Ed. 2. – P. 168–176.
5. Press I.A. on some psychic-pedagogic aspects of utilizing e-learning // Higher education in Russia. – M.: Moscow state university of print, 2011. – P. 105–111.

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PEDAGOGICAL PREVENTIVE MAINTENANCE OF PSYCHO-EMOTIONAL FRUSTRATION OF SCHOOLCHILDREN AT MUSIC LESSONS AT COMPREHENSIVE SCHOOL

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This article discusses the pedagogical methods of prevention of psycho-emotional disorders, primary school children to music lessons in secondary school, as well as the results of experimental and experimental verification of effectiveness.

The choice of the given theme isn't casual, because more often school psychologists reveal the pupils having various neuroses. I want to give particular attention to the way musical material using the techniques of art therapy combined with art pedagogy influence the psycho-emotional condition of children of a younger school age. We live in a difficult psychological condition in modern big cities, and the education of schoolchildren is of great value.

Children spend a majority of their day in school. Therefore, school becomes a major factor in the formation of the child's personality, and this person shapes our future generation. This pedagogical process requires a great deal of work, and special attention to each individual child's needs, growth, and development. On a surface level,

a child's music lessons in an educational setting may seem to simply bring the child happiness; however, the emotional connection to the study of music and to the music itself occurs at a deep level of consciousness, a level that can be understood only through psychology and psychological understanding. Music is capable of an influence on the sensual-emotional sphere of an individual's consciousness and sub-consciousness; it is at these deep levels of influence that music has the strongest and most positive effects. It has been shown time and time again by generations of philosophers, psychologists, and, most importantly, teachers. The teacher of music carries out a most important psychological-pedagogical function: the use of techniques in psycho-emotional correction and preventive maintenance of psycho-emotional frustration in children in order to create a healthy, encouraging environment in which to study. However, a close analysis of the text books used to train teachers in music education shows that this process is entirely absent; indeed, the idea of using pedagogy and psycho-emotional analysis in a combined technique is not realized, nor is it even considered by teachers of music.

I believe the use of psycho-therapeutic methods in tandem with pedagogy in the musical education of children is vital. The urgency in gaining understanding into this field is made apparent by the lack of discussion in the materials, programs, and methodical recommendations that are used to train teachers in music education. My objective is both clear and necessary: to develop a technique of preventive maintenance of the psycho-emotional state of children in their study of music so that their emotional health may be nurtured in an environment that understands the deep connection between music and the psyche.

References

1. Abolin L.M. Psychological mechanisms of human emotional stability. – Kazan, 2005.
2. Dileo D. Child's drawing: diagnosis and interpretation. – M., 2001.
3. Prohorov A.O. Interaction mental conditions of teachers and students during the lesson // Questions of psychology. – 1990. – № 6.
4. Shushardzhan S.V. Study the effect of different kinds of musical influences on the life of cultured melanoma cells as a model of non-specific study of acoustic bio-resonance effect. – M., 1999.
5. Shushardzhan S.V. Guide to music therapy. – M., 2005.
6. Vorozheva O.A. Music and play in child psychotherapy. – M., 2004.
7. Watson T. Music therapy with adults with learning disabilities. – New York, 2007.

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FROM IT-EDUCATION CONCEPTS TO COMPLEX IT-DEVELOPMENT OF THE RUSSIAN SCHOOLS AND IT-EDUCATION OF SCHOOL STUDENTS

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The interest to IT technologies at the children is formed today since the childhood – at the all stages of a growing the modern market offers a set of the entertaining and the informative technical devices which with the pleasures feeling are capable to absorb all free time of the preschool children and school students, including distracting them from any other vital duties and the study in general. The game addiction is capable to become more important for a family of the school student with which parents aren't engaged, than actually the study at the school. It is important to note that many children come to school already being informed in the field of modern mainly game IT-technologies, and many – carried away by them as the main game interest and even a way of the communication with the age-mates. The education question of the children (both positive, and negative) in the course of the development of this or that game (drawing of blows to the opponent, collecting of the coins for the sake of their accumulation, races, logic searches and many other types) yet isn't explained also anybody, except intuitive perception of parents, isn't supervised. In our opinion, it would be expedient to take over the control the state educational standards and their realization of the skills of the IT-technologies application formed in the families for the purpose of the possibility restriction of the drawing of harm by them to health and mentality of the school students, a written and instructive explanation of the pluses and minuses of their use, and also the involvement of the saved-up skills and the knowledge school students out of school in process of school education, closer connection of the system of the vital values, psychology, children real interests and teenagers with their stay in schools.

With this it would be correct to speak not about IT-education in the school of the future, and about IT- concept of the further substantial and formalized content of the knowledge which should be taught with a stress on their viability, positivity and cheerfulness, objectivity, compliance to age features of the intelligence development and mentality of the school students in the different classes, involvement in professions necessary for society, taking into account disclosure of creative potential of the personality, its self-sufficiency and commitment. On the scale of the society it would possess considerable effect since the level of the school environment influence on the process of the school students education still remains significant.

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FORMATION OF UNIFORM EDUCATIONAL SPACE IN A PROFESSIONAL TRAINING IN THE FIELD OF ECONOMY: THE OFFER OF THE RUSSIAN PARTICIPANT

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The Russian Federation has the long-term experience of a professional training in the field of economy taking with the requirements of the time and the elaboration of the applied economic researches. As the participant of the given processes, we consider expedient to note the following priorities of the international educational standards unification:

1. The uniform standards, study program and books working out and introduction in the field of the preschool children and school students preparation on economy. Mastering by knowledge, for example, in the field of the state pension system in the elementary school the approaches going from valuable orientation of the children according to their age – scientifically proved and essential are represented to us inexpedient, and here. Therefore we address our author's book for the school students in the name «The moral economy» to the international community as adapted for the schools (for preschool children we can prolong this educational technology) and containing serious encyclopedic imperatives, not difficult for the perception, but missed now in the course of school education not only in Russia, but, unfortunately, in the worldwide.

2. At a professional training stage in the system of the higher school we offer:

- a) to reconsider the focused to the conjuncture model of a professional training without demand for them in the future on economic specialties and to systematize the international experience from the point of view of the importance of educational activity not in a separation from manufacture, and in a direct connection with its requirements;

- b) to use scanning of the QUALITY of the educational preparation in the uniform progressive technology on the basis of the uniform educational reference points of a minimum of the economic knowledge (as instructive experience – we offer to use in wider scale developed and approved by us in 2010–2012 «Coefficient of the intelligence of the financier (economist)», consisting 140 questions and covering 8 base applied economic disciplines);

- c) on technologies of the quality scanning to carry out the mutually recognition diplomas which now occurs on other technologies, including for the reasons of the prestigiousness, the best condition of the financement of the HIGH SCHOOL, the crite-

tion of the success of its pupils, but not of the average quality of the students preparation.

3. To develop modeling system of the mass economic education of the population that we consider possible to carry out applying our experience of encyclopedic education (since 2005 in Russia there is published and republished for these purposes «The New Economic Encyclopedia» for everything, also our author's, in 2010–2012 – 4-th edition).

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**NEED OF THE INTERNATIONAL
EDUCATIONAL STANDARDS
COMPLIANCE ON THE LITERATURE
FOR THE SCHOOLS
TO THE MORAL CRITERIA**

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The unification of the international educational standards in the field of the literature should go, in our opinion, on the basis of the criterion of the universal moral values treatment which esteem in the worldwide. For what the school students study this or that literary work? For learn the beauty literary language? To reveal distinctions between the various literary styles? Likely, today it becomes insufficiently. And in the first place it is nominated the problem of the connection the educational function of the outstanding literary works of the countries of the world which has become classics, with the descriptive context, based for some reason mainly on the sample description of the protagonists after all. In Russia already many generations are brought up on the same literary images though the priorities of the aspirations of the modern person essentially changed. We consider that for a long time there is ripened the revision of the literary works entering into the school program, from the point of view of the more complete and their valuable selection, connection with problems of valuable, world outlook long-term education at the schools.

From here – and the unified for the world countries selection of the literary works of the universal importance of the different times and the people which have absorbed the inherent moral values, and their unbiased, not stamped analysis which today anybody for the Russian schools for some reason didn't make (as it is necessary to analyze this or that literary work), and the emphasis on the formation mature on the moral and to ethical values of persons which won't want, having left school to kill, to steal, to drop the advantage of the near person, become economical, active, polite, cultural, useful to society, will work instead of to order. The literary

works through the sufferings of their heroes, which importance admits authoritative international community with participation of the Russian experts, would open already during training at school that such «point of honor», «love», «friendship», «hatred», «treachery», etc.

In this regard in 2012 we analysed the most popular Russian national fairy tales, not all from which would need to be studied at modern school by ethical and moral criteria (see Rumyantseva Sofia. Moral in the Russian national knowledge and allegorical meaning. – LAP LAMBERT Academic Publishing, 2012. <https://www.ljubluknigi.ru>). This work should be continued for the purpose of the improvement of the literature teaching processes at the world schools on the uniform, chosen as the teachers of the different countries to the criteria of an assessment of the importance of the works.

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**QUALITATIVE
INFORMATION-ANALYTICAL SUPPORT
AS TECHNOLOGY OF INNOVATIVE
EDUCATIONAL MANAGEMENT
IN HIGH SCHOOL**

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Today, we all become members of the modernization process: the transition to a two-tier education, competency approach, the introduction of CT, integration of universities, etc. All these raise the question: why do we need these innovations, what is their purpose, what are the results, and in general how useful are they for higher education system, because it is no secret that innovations can bring not only good results, but also bad.

Educational innovation in the university are created to ensure the modernization and development of education in accordance with the requirements of today's reality. However, in most cases, innovative educational activity in high school (development, testing and implementation of educational innovation) is spontaneous, they do not adequately assess the extent of its impact on the quality of education, and this, in turn, makes it necessary to develop a systematic approach to the analysis of information about the features of the university educational environment, resources, and risks of innovation, compared to expected results and the development of personal and professional development of students.

Due to its specificity and to some extent, because system is inert, higher education can not be changed drastically. The changes are made gradually, that's why the transfer from meeting require-

ments of educational qualities to carrying out other requirements is provided by maintaining innovative educational activities involving the modernization and re-engineering of the educational system of the university.

Strategic planning of innovative educational activities assumes the vision of quality of the educational system of the university, that is, determination of the desired quality for 3 or 5 years time, and identifying the development areas. The analysis should answer the question: what educational innovations are necessary to bridge the gap between desired and predictable quality of education existing today.

Prognostic assessment of quality must be focused on the needs educational product and service consumers: potential employers and students, so when assessing the quality of professional training it's necessary to evaluate the ability of the educational system to meet, the needs of the economy for qualified of specialists on the one hand and need of a person for getting certain competencies on the other hand.

Modern management involves not the elimination of problem itself, but the change of processes, that generate them that means re-engineering of the educational system by conducting a strategic planning innovation and educational activities.

Thus there is a chain: the future outlook (vision) of quality of the educational system – a gap between the estimated and the actual state – the identification of problems and processes that give rise to these gaps – strategic planning of innovative educational activities, that suggest solutions of the problems – quality control of innovation and innovative educational activities – measuring the achievement of innovative educational activities – correction and control.

The purpose of innovative educational activities in the end is to raise the quality of education in accordance the current requirements of society and the development trends of the educational system, on the basis of which can be predicted, new requirements for the quality of innovation and educational activities.

The various aspects of innovation and educational activities have been reviewed in teaching science.

However, as in the theory and also in the practice of innovation and educational activities at the university sufficient attention is not pay to the analysis of information about the external and internal environment of the university, the results are not examined, the quality of innovation is not assessed, therefore, although the number of educational innovations is growing, they do not significantly impact on the quality of higher education.

Need for a systemic approach to the design, monitoring and evaluation of educational innovation, improvement of predictability and manageability of innovation educational activities, and

determination the extent of its impact on the quality of higher education determine the relevance of questions of qualitative, information and analytical support of innovative educational activities.

Innovation can appear as well as proceed spontaneously, but the opportunities of qualitative information and analytical support of innovative educational activities let us make the innovative educational activities more predictive and manageable, thus improving its quality.

Qualitative information and analytical support of innovative educational activities is an integral process of analytical study, prediction, diagnosis of goal setting, planning, quality assessment, data collection and dissemination of information at the appropriate stages of innovation and educational activities, including the following procedures:

- 1) the collection, processing and analysis of the internal and external environment of the university;
- 2) prediction of the need for certain innovations;
- 3) an analysis of innovation in terms of achieving the goals of education in the university, improvement of its effectiveness;
- 4) implementation of predictive quality assessment innovation;
- 5) the construction of the information infrastructure of the university, creating an information environment for the development of innovation and self-education;
- 6) the development and content of databases on various aspects of innovation and education;
- 7) pilot assessment of the quality of educational innovations;
- 8) evaluation of the quality of innovation and education;
- 9) distribution of innovative experiences in the university and beyond;
- 10) the final assessment of the quality of innovation.

Qualitative information and analytical support has two circuits: internal and external. In the outer loop is the collection and analysis of information about educational innovations of other educational institutions, the legal documentation on innovation management bodies of educational institutions, publications, press, television, the Internet. Parallel to this is the promotion of the university's own educational innovations to the information educational environment. Internal circuit involves the collection, analysis, tracking results, assessment of quality of innovative educational activities, dissemination of experience in a particular university.

In the process of qualitative, information and analytical support educational innovations are designed and planned in such a way as to provide bridging the gap between the quality of education that the institution has at present and the level of quality you want to have in the future.

Qualitative information and analytical support of innovative educational activities enables its har-

mony and balance, as well as the coordination and the positive impact of innovation processes on the quality of education at the university.

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FEATURES OF FORMING THE SYNDROME OF «BURNOUT» IN THE PROCESS OF PEDAGOGICAL ACTIVITY

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There were singled out basic reasons and the structure of «burnout» syndrome (BS) in the process of pedagogical activity. Emotional burnout is an acquired stereotype of emotional, more often professional, behavior. The reduction of professional duties can be considered as the final stage breach of business relations culture. There was carried out an examination of features of forming the «burnout» syndrome within pedagogues with different length of pedagogical service. Received information testifies to the fact that formedness of phases and symptoms of BS correlates negatively with the length of pedagogical service. To the basic strategies of BS prevention there belong: timely complex diagnosis of health condition within pedagogues, forming of emotional self-regulative mechanisms.

Sociocultural situation and goals of education set up a claim to pedagogue's activity, making it polyfunctional and complex. The important moments of pedagogical work are: pedagogical activity, as organizational activity and as understanding of student's consciousness; and also communication and reflection of student's state. In society pedagogue also has a culturological function, he is a bearer of modern «syncretic» or communicative culture, the main value of which is the dialogue and organization of understanding (L.D. Stolyarenko). Carrying out his functions, pedagogue receive the psycho-emotional overload, and the result is efficiency impairing of professional activity. An effect of objective and subjective factors cause the feeling of dissatisfaction and emptiness, accumulation of fatigue, low assessment of one's own professional competence, what leads to exhaustion and burnout (N.E. Vodopyanova, E.F. Zeyer, N.V. Kuzmina, A.K. Markova, L.M. Mitina, V.E. Oryol). Professional stress or the «burnout» syndrome accumulates, and as the result a person is not able to release accumulated destructive energy completely, then this energy begins to ruin the human.

Since the main reason of BS is psychological, mental overfatigue, it is considered to be multidimensional phenomenon, which is expressed in psy-

chological and physiological reactions to the wide range of situations at the labour activity of person, at the same time negative consequences of professional stress are examined in different aspects: influence on work results, mental and physical health of pedagogues [3].

The burnout syndrome is one of the most serious problems for ones who work at «man-man» system. On the one hand, «burnout» allows person to dose and economically spend energy resources, on the other, there can appear its dysfunctional consequences – exhaustion of emotionally-energetic and personal resources as the result of inner negative emotions' accumulation without appropriate «unload» or «release» [2]. This syndrome includes three basic components: emotional exhaustion – the feeling of emotional emptiness, caused by one's own work; depersonalization – cynical, indifferent attitude to labour and objects of one's work; and reduction of professional achievements – origin of incompetence feeling of one's professional sphere, awareness of failure, lowering of personal achievements (Maslach and Jackson) [6]. By «reduction» is understood the «simplification». At the professional activity, which supposes communication with people, reduction show itself in attempts to facilitate or reduce duties which require emotional efforts [2]. Pedagogue consciously or unconsciously approaches to mental comfort, lowering of pressure of external conditions in the result of emotional, professional behavior stereotype's changing. Resisting to an increased pressure, trying not to bring it up to extreme exhaustion, pedagogue lower the pressure of external conditions by means of selectivity of emotions and simplification of professional goals.

Reduction affects negatively the discharge of professional activity and pedagogue's relations, that is shown in: loss of interest in student as a person, teacher reduces his work to formal carrying out of lesson, ignoring educational function; desire for facilitation and simplification of duties, which require emotional efforts; absence of opposition to external conditions, planning and professional activity goal setting, self modification for the sake of their achieving. Having emotional efforts and focusing on oneself, pedagogue reduces expression of participation, attention, has inner necessity to «curtail» the situations of communication, limit oneself to exceptionally business contacts, not to pass into more deep personal aspect [2].

Nowadays there is no single opinion on BS structure, but one can say that it is considered to be a personal deformation as a result of emotionally complicated and intense relations at «man-man» system.

The aim of research is to specify the features of BS forming within the pedagogues of comprehensive schools with different length of pedagogical service.

Methods of research. The method of diagnosis of emotional burnout degree of Boyko V.V. allows to diagnose main symptoms of «emotional burnout»

and to define which phase of stress development they belong to: «effort», «resistance», «exhaustion» [4]. At the phase of effort there can be singled out following symptoms: «experience of psycho traumatic circumstances (social stress)», «dissatisfaction by oneself», «exhaustion in cage», «alarm and depression». There are typical syndromes for the resistance phase: «inadequate selective emotional reaction», «emotional-moral disorientation», «broadening of emotion's economy sphere», «reduction of professional duties». The phase of exhaustion is composed from: «emotional deficit», «emotional detachment», «personal detachment (depersonalization)», «psychosomatic and psychovegetative abnormalities».

zation)», «psychosomatic and psychovegetative abnormalities».

Results of research and their discussion. By the length of pedagogical service there were singled out following subgroups: under 5 years, 6–10 years, 11–20 years, 21–30 years, more than 30 years. At the group of test there is prevalence of pedagogues with the length of service from 21 to 30 years – 44,33 %. The best evidence of BS forming is observed at the group of pedagogues with the service length under 5 years. Low degree of BS forming is noted within pedagogues with 21–30 years of pedagogical service (Table).

Average values and standard deflections ($M \pm m$) of burnout syndrome forming degree at the groups of pedagogues with different service length

Length of service	Phase of effort	Phase of resistance	Phase of exhaustion
Under 5 years	$79,74 \pm 8,99$	$58,73 \pm 2,90$	$48,35 \pm 9,18$
6–10 years	$60,27 \pm 7,48$	$47,69 \pm 10,85$	$41,33 \pm 8,19$
11–20 years	$57,20 \pm 19,66$	$47,70 \pm 17,27$	$37,74 \pm 14,20$
21–30 years	$48,23 \pm 16,43$	$41,06 \pm 14,83$	$34,14 \pm 14,56$
Более 30 years	$56,20 \pm 20,23$	$46,43 \pm 16,70$	$43,37 \pm 14,83$

Statistic facts show that at the group of pedagogues with under 5 years service length there were formed following symptoms at the phase of effort of emotional burnout: experience of social stress, dissatisfaction by oneself, «exhaustion in cage»; the symptom «alarm and depression» is forming. The prevailing symptoms are the experience of social stress and dissatisfaction by oneself. At the group of pedagogues with service length from 21 to 30 years the symptoms of effort phase are at the stage of forming. Within the pedagogues with under 5 years service length the symptoms of the resistance phase of BS are at the process of forming. The minimal forming of resistance phase symptoms is observed within pedagogues with the length of service from 21 to 30 years. Within the pedagogues with under 5 years service length there are forming such syndromes as: emotional and personal detachment, emotional deficit, psychosomatic and psychovegetative abnormalities. These symptoms haven't been formed within the pedagogues with the length of service from 21 to 30 years. The pedagogues with more than 30 years service length have symptoms of «emotional detachment», «emotional deficit».

Carried out dispersion analysis of received results allowed to define the influence of service length on the forming of symptoms and phases of burnout syndrome. The BS phases forming degree reduces with the increase of pedagogical service length, reaching its minimal values within the pedagogues with the service length from 21 to 30 years.

Thereby, we have reveal following laws: forming of emotional burnout syndrome correlates

negatively with the length of pedagogical service; within the pedagogues with under 5 years service length there is the biggest evidence of symptoms and phases of BS forming: the prevail symptoms of BS within the pedagogues with under 5 years service length are «the experience of social stress» and «dissatisfaction by oneself»; the dispersion of values of phases and symptoms of «emotional burnout» syndrome correlates negatively with the length of pedagogical service.

Conclusion

The basic strategy of BS prevention:

1. Psychophysiological, psychological and medical diagnostics.
2. Revealing of psychoemotional effort and improving of health condition and feeling of teachers.
3. Lowering of negative emotional experience, its transformation into positive emotions.
4. Acquaintance with the techniques of self-government and self-regulation of emotional states.
5. Forming of healthy way of life and harmonious professional activity necessity [1, 3, 5].

References

1. Psychophysical wellbeing and methods of stress conditions correction / S.G. Akhmerova, S.N. Gorbushina, V.Y. Gorbunova, F.F. Valiakhmetov. – Ufa: Kitap, 1999. – 64 p.
2. Beznosov S.P. Professional deformation of personality. – SPb.: Speech, 2004. – 232 p.
3. Bodrov V.A. Psychology of professional activity. – M.: PerSe, 2001. – 511 p.
4. Boyko V.V. The syndrome of «emotional burnout» at the professional communication. – SPb.: Piter, 1999. – 160 p.
5. Vodopyanova N.E. The syndrome of burnout; diagnostics and prevention / N.E. Vodopyanova, E.S. Starchenkova – SPb.: Piter, 2009. – 336 p.

6. Maslach C., Jackson, S.E. The measurement of experienced burnout // Journal of Occupational Behaviour. – 1981. – № 2. – P. 99–113.

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ROLE OF LANGUAGE, THINKING AND VALUE SYSTEM AS PRIORITIES OF HIGHER EDUCATION

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Values system and orientations determine the individual's vital activity and they are the main line of the people's behavior, the definition of life goals and construction of plans.

Social norms are also a necessary part of the culture. They define specific orientations already in people's behavior, and patterns of behavior. As noted by V. Plakhov, «social norms created in the course of social evolution are the means for fixing the constantly changing public relations».

Values and world outlook aspects must constitute the substance of education. Of the many available in this connection *problems* it is *important to highlight the followings*:

Firstly, the problems of correcting the value orientation of students as future professional potential of society and **transform the mentality of the individual and of a society** on the basis of strengthening the national cultural values, which are inseparable from patriotism and civic engagement. In the broad meaning the word «mentality» is a kind of genetic code of the society, people, humanity, predicting the course of history. From a philosophical-methodological point of view mentality is the form and method of reflection of what is happening, which is a kind of reaction or reflection of consciousness expressed in behavior.

Hence the **mental (individual) experience is a criterion basis (a peculiar choice filter) of a man relation to the World, which determines the methodology of algorithm of his activities**. National education is closely linked to identity, self-determination in social communities, types of culture, values. The concept of identity works currently in sociology, philosophy, psychology and pedagogy. Ethnosociologists emphasize that identification is the real mechanisms of a person's awareness as a community representative.

In our view, the mental experience can become necessary mediator of parts of the whole teaching process formed the qualities and properties of the person, including, and mental abilities.

If intellect correlates with features of the organization of individual mental experience, it can

be assumed that every student «is filled in» by his own experience, which determines the nature of his intellectual activity in certain specific situations. Hence an *axiomatic conclusion* that each individual objectively needs to create conditions conducive to intellectual growth through maximum enrichment of his mental experience is legitimate. In *humanistically oriented education* the inner experience is considered to be as a *context for teaching*, in particular, it encourages intuitive quality, imagination, expression of feelings, the accumulated life experiences outside the school. *As we know, these qualities are cultivated by traditional pedagogy. It is important that today modern pedagogy tends to regard the mental approach as a fundamental principle of modeling new pedagogical systems, activating the cognitive activity of students.*

Secondly, we should look at the formation **attitudes of world outlook and values orientation**.

Solving the principal learning objectives as a man and his relationship to the world requires a holistic worldview. As we know, worldview education is integral. Relationship of its components and their combinations is fundamentally important. Outlook involves a complex interaction of diverse knowledge, beliefs, feelings, attitudes, aspirations and hopes of the individual. Connecting in outlook, they are seen to be more or less complete understanding of the world and themselves. Everyday life and practical, professional, scientific generalized knowledge composes world outlook and plays a major role. The deeper knowledge is, the richer outlook may be formed. A world outlook is an indicator of maturity of the individual, rather, a man in his personal development becomes a personality only when he forms a certain world view, outside of which he is not a personality at all in the proper meaning of the word.

The degree of cognitive richness, validity, reasonableness, internal consistency of a worldview is different. But knowledge never fills the entire field of world view. In addition to knowledge a certain *system of values* play the important role in the world view. World outlook is may be represented as a complex world, intense, contradictory unity of knowledge and values. In value consciousness moral, aesthetic, philosophical ideals are formed. Important concepts of value consciousness are the concepts of good and evil, beauty and ugliness. Through the relationship with the norms, ideals the evaluation – assessing the value of what is happening occurs. System of value orientations is important for the individual and the general world outlook.

The third aspect of the consideration of the priorities of education is related to the problem of **addiction world outlook** and its component such as a **national consciousness**. In fact both of these aspects as self-comprehension – consciousness and values are inseparable and they are the characteristics of a multifaceted process: the formation of personality in a poly-cultural environment. National

self-comprehension should be considered as a dual interconnected process: on one hand -man's awareness of the inherent national community, a national «I am», the commitment to the language, history, culture, and other national characteristics, on the other – orientations on human values, inter-national comparison and culture of inter-national communication. Within the cultural approach, a source of national consciousness is a national culture, which «is not limited to components having national forms». The level and type of culture measure values and the quality of national, but they are not limited to it. National culture and its elements are the content of the components of national consciousness: cognitive, moral, emotional and behavioral. Cognitive component covers almost the scope of national culture: history, art, language, customs, traditions, national education, national ethics, etc. Knowledge, learned norms, values, evaluation don't only serve to national identity, but also they give an idea of common descent, historical fate, area.

The fourth problem of education priorities is related to the problem of *language education*, the most relevant for the non-linguistic high schools. The specified by socio-cultural situations such education universals as self-expression and communication, within which the value orientations are considered, need global changes in the practice of language teaching. For last decade linguistic and psychological research give us a new understanding: distinction of value and meaning of the word (or any meaningful unit of language) as the universal and the individual one raises the problem of understanding primarily within a single language. No repetition of meaning, which are listed by the author of text and reader, requires the hard work of everyone who comes into speech communication. Thus the core of the language of education is *textuality as an integrative principle to develop successfully not only their native language, but the others composing the poly-lingual field of modern informative exchange*. The principle of textuality requires programs and teaching methods including three main components:

- speech as a special type of activity (speech function, its importance in human life and society, its inside and outside form);
- speech situation (cultural norms, from linguistic forms to the forms of thought and action);
- text as a product of speech and speech situation.

So the *aim* of language education is the development of linguistic personality to cope with the situation of understanding peculiar to human communication – the main priority and the main value.

References

1. Emile Durkheim. On the division of labor. The method of sociology. – M.: Nauka, 1991.
2. Sorokin P. Man. Civilization. Society. – M., 1992.
3. Plakhov V.D. Social norms: the philosophical problems of general theory foundations. – M.: Mysl, 1985.
4. Gershunsky B.S. Education in the third millennium: the harmony of knowledge and belief (predictive hypothesis of educational triumph.). – M.: Moscow Psychological and Social Institute, 1997. – 120 p.
5. Gershunsky B.S. Strategic guidelines for the development of education in Russia // Education. – 1996. – № 5. – P. 46–54.
6. Konyratbay T., Taubayeva S. Kazakh mentality and educated area // Journal of Higher Education in Kazakhstan. – 1998. – № 5. – P. 169–174 (in Kazakh. Lang.)
7. Ethnicity. Identity. Education. Proceedings of the sociology of education / Ed. V.S. Sobkin. – M.: Center Soc. Educ. RJSC, 1998. – Vol. 4. – № 6. – 268 p.
8. Karminsky A.E., Starkova A.P. The education system in Germany and France. Collection. – Almaty: publ KazGUMYa, 1995. – 126 p.

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DEVELOPMENT OF TEACHERS' MEDIA COMPETENCE IN THE DISTANCE LEARNING ENVIRONMENT

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The development of teachers' professional competence, their skills of self-education, as well as their readiness and ability to adapt to the changing social, political and economical conditions should be reckoned among the most important goals of modernizing general secondary education in Kazakhstan. This goal was enunciated as a foreground one and reflected in a number of normative documents in the educational area, particularly, in the Conception of education development in the Republic of Kazakhstan till 2015 [1], State education development program in the Republic of Kazakhstan till 2020 [2].

Currently, there is a new specific direction in the educational field, called «mediatization». The term «media» implies all the means of communication and includes the «traditional» (press, radio, sound recording, cinema, television) as well as modern (mobile phones, I-Phones, CD, DVD, computer, Internet etc) mass communication media. Mediatization, as an integrative field of study, explores the ways in which media and media-related phenomena influence education and the mechanisms underlying this process. It also deals with the question, how traditional, as well as modern types of media and telecommunication technologies can be creatively used to facilitate person's self-realization and the self-actualization of its potential. In this context, a specific type of education – media education – has emerged. As Friesen and Hug mention, «media education has been promoted in diverse domains of practice, and it has become an established field in many universities. Today it is

mostly seen as a branch of educational sciences and less as a specific concretisation of general pedagogy or educational theory» [3, p. 64]. Some authors, e.g. Hug [4], stress the necessity of discussing the use of media for the educational purposes and discussing other media-related questions as a part of school curriculum. In Germany this approach was called *Medienpädagogik* (media pedagogy). Hence, the importance of media education for teachers cannot be underestimated.

It is worth to mention, that in some types of learning a high level of teachers' media competence is not only a desirable characteristic, but a requirement for successful learning to happen. Technologies using computer learning environment (for instance, distance learning) certainly belong to the above-mentioned case. At the present point of time, distance learning is represented as a specific direction in the pedagogical science (G.K. Nurgalieva, Tazhigulova A.I. [5], A.T. Robert [6], E.S. Polat [7] and others), which is defined as a pedagogical educational system, presupposing an organization of learning process basing on telecommunication and information technologies [6]. Distance learning requires development and application of new conceptual approaches to representation of learning material, designing the content of academic disciplines, changing the organizational types and methods of learning, style of interaction between the learner and the teacher, etc. [8].

In the context of distance learning, the development of teacher's professional competence is closely associated with providing them with a rigorous training in using media technologies in the learning process. However, the analysis of literature in the field of learning sciences showed, that the problem of developing teachers' media competence in the context of distance learning still remains underinvestigated. Hence, the following **contradictions** can be observed in the theory and practice of education at the present moment:

- a contradiction between the integrative nature of teacher's media competence and the absence of theoretical and methodological systemic knowledge about, and support of, its training and development in the context of distance learning;
- a contradiction between the urgent need for gaining experience in applying methods of using media technologies in the learning process by contemporary schools and the factual absence of theoretical grounds and methodological support of this process.

These contradictions clearly show the necessity of doing research on the topic we present here. We would also like to mention, that teachers' media competence can be developed only as a result of a purposeful training, therefore we consider it reasonable to lay out the specifics of the phenomenon under investigation.

An analysis of the approaches to defining the concept «competence», presented by different au-

thors (V.A. Adolf, [9], S.I. Fercho [10], S.Z. Bajchonova [11], A.A. Zhajtapova [12], M.Z. Zhadrina [13] and others) allows to state, that competence is an integrative personal characteristic of a professional, that promotes a rational and effective execution of a particular activity (in the framework of a specific profession), driving this activity to perfection.

According to A.V. Fedorov, media competence of a person is an aggregate of skills (motivational, contact, informational, perceptual, interpretative (evaluational), practical-operational, creative) to choose, use, critically analyze, evaluate, share and create media texts in different types, forms, genres and to analyze the complicated processes of media functioning in the society.

It is necessary to stress, that media competence of a person and teacher's media competence can not match perfectly, moreover, they have fundamental differences, have their particular characteristics, determined preeminently by the pedagogical nature of teacher's professional activity and the characteristics, stipulated by this activity. Therefore, we claim, that personal media competence can be considered to be the first stage for the development of teacher's media competence.

Basing on the above-mentioned statements, we define the concept «teacher's media competence» as a personality construct that allows to carry out pedagogical activity productively, actively using facilities of media technologies; that is oriented towards realizing possibilities of professional self-realization and self-actualization in the opened educational media space and being characterized by presence of a number of components: value-motivational, content-related and procedural.

The relevance of developing teachers' media competence demands revealing the main prerequisites for the achievement of this goal. The most important from them is the identification of component structure of the concept under investigation. To get a holistic impression of the concept, we need to describe its components precisely enough, what will allow to set clear boundaries of the quality we are investigating and make it sufficiently easier to track the dynamics of its development. Description of the phenomenon's structure also allows to give it a detailed essential characteristic. The component structure of teacher's media competence is determined by the peculiarities of the contemporary teacher's professional pedagogical activity.

Distance learning is designed to foster the development of teacher's media competence. Only the teacher, who strives for professional growth, who has mastered media technologies for learning and educating and who is using them in practice, will work more effective than a teacher using traditional methods and tools of learning and upbringing.

Taking into account the multidimensionality of the phenomenon of interest and lack of research in this area, we considered it to be reasonable to introduce the structure of teacher's media competence.

Basing on different approaches to understanding **media competence**, we can single out the following components in its **structure: value- motivational, content-related and procedural**. The structure of media competence, defined in this way is expressed through components, oriented towards work with media information, media technologies and their methods, which, in consistence with systemic approach presuppose a synthesis of theoretical knowledge and specific skills and include a number of characteristics of teacher's professional pedagogical competence.

Basing on the definition of pedagogical system and taking into consideration criteria of its functionality, we designed a system of developing teachers' media competence in the context of distance learning.

The system designed includes target, content-procedural, organizational-technological and criterion-level components.

The **target block of the system** was formed on the analysis of normative documents (State education development program, Education law of the Republic of Kazakhstan etc.), in which the requirements for the teachers' professional competence are stated.

Content-procedural block is presented as a process of development of teachers' media competence, carried out within the framework of pedagogical process in which the interaction of university teachers, counselors, specialists, tutors and school teachers is organized.

Organizational-technological component of the system is represented in different organizational forms, tools and methods, aimed at achieving goals at each stage of the media competence development.

Criterion-level component of the system includes: psychological – pedagogical diagnostics, monitoring; criteria, indicators and levels of the teacher's media competence development, as well as the end result.

As a part of our research, on the exploratory phase of the experiment the first measurement of teachers' media competence (according to the criteria described above) showed, that most teachers are lacking the systemic knowledge about the essence of media technologies and their role and meaning for the society; knowledge about the methods of constructing learning sessions and educative events using media facilities is insufficient; the skills of deriving and presenting information using media are lacking, as well as skills to manage the media information flows. However, teachers are showing interest to profession-relevant knowledge, feel the need for information enrichment with media facilities, strive for meeting the requirements of the new media society in their professional practice.

Consistent with the conclusions from the exploratory phase of the experiment and with our

research goals, the whole experimental work was aimed at testing the effectiveness of the designed teachers' media competence development system in the context of distance learning and at implementation of a media competence developing method, which included three interconnected stages:

On the preparatory stage, the main goal was developing an attitude towards media and media technologies, their different manifestations and forms as having value (value attitude). To accomplish this purpose, we organized and conducted discussions, seminars and trainings with teachers. We also distributed a questionnaire to get an impression of media preferences in the group of teachers and this information has been taken into account during realization of the experimental program.

On the stage of theoretical preparation, a distance learning course «Development of teacher's media competence» was designed with the purpose of deepening teachers' knowledge about media, forming personal and professional media orientation, a personal view on the media culture mastering the skills of using media technologies in their professional practice. The course was also tested in the Resource center (Ust-Kamenogorsk, Kazakhstan).

On the third stage (practical preparation) the main goal was development and consolidation of knowledge and skills in a specifically organized media environment. Particular attention was given to work with media technologies and methods of their use in professional pedagogical practice. On this stage, the following technologies were used: trainings, chats, online-counseling, forums, and educational portal of the Resource center, what created an environment for professional self-realization of teachers in the media space and armed them with methods of using media technologies in the school learning process.

The sample of our experimental study consisted of learning groups formed from teachers of regular schools (N = 350). The teachers' age varied from 24 to 60 years, the amount of work experience varied from 4 to 35 years. Different age categories were represented in the following way: age from 24 to 30 years – 12%, from 31 to 40 years – 36%, 41–50 years – 34%, 51 to 60 years – 18%.

The experimental work allowed us to modernize the process of developing teachers' media competence significantly, increase the overall level of teachers' media competence, get visible results.

Analysis of the results obtained from processing of the experimental data allows to make a conclusion, that implementation of our program resulted with high level of content-related component (87% of teachers who participated in the experiment had high level and 10% – average level of this component) and high level of value-motivational component (79% of teachers had high level, 16% – average level after the experiment). Concerning

the procedural component of teachers' media competence, its level is a bit lower than this on two other components (75% of teachers showed high level on this component and 23% – average level), what indicates the need for further improvement of practice-oriented procedural knowledge and skills of using media technologies in professional activity.

The effectiveness of experimental work on development of teachers' media competence in the distance learning environment was confirmed basing on an increased level of the following indicators: level of knowledge about the essence of media technologies, their meaning and role in the society; creative approach to the process of making media texts; ability to analyze complicated processes of media' functioning; knowledge about methods of designing lessons and educative events using media tools; knowledge of the main notions and terminology of media education; skills in selecting content and methods of learning and educative activity, based on the use of media; assuring the variety of learning and educative content based on the means of media; ability to manage the subject position of learner basing on the means of media; interest to the professionally relevant knowledge and need for its obtainment using media; need for information enrichment through the means of media etc.

To conclude, the process of developing teachers' media competence in the distance learning environment presupposed design and implementation of the following interconnected stages: preparatory, theoretical and practical, with the leading role of the distance learning course «Development of teacher's media competence», as well as didactic games, trainings, forums, counseling, use of the specialized informational learning portal of the Resource center (Ust-Kamenogorsk).

References

1. Conception of education development in the Republic of Kazakhstan till 2015. – Astana, 2005.
2. State education development program in the Republic of Kazakhstan till 2020.
3. Friesen N., Hug T. The Mediatic Turn: Exploring Consequences for Media Pedagogy. In K. Lundby (Ed.). *Mediatization: Concept, Changes, Consequences*. – New York: Peter Lang, 2009. – P. 64–81.
4. Hug T. Medienpädagogik – Begriffe, Konzeptionen, Perspektiven. In G. Rusch (Ed.), *Einführung in die Medienwissenschaften*. – Opladen: Westdeutscher Verlag, 2002. – P. 189–207.
5. Nurgalieva G.K., Tazhigulova, A.I. Methodology and technology of secondary education informatization. – Almaty, 2008.
6. Robert I.V. Modern information technologies in the education: didactic problems, perspectives of use. – M.: School news, 1994.
7. Polat E.S. *Distance Learning*. – M., 1998.
8. Bondareva S.G. Modern information technologies in the system of higher education. – *Ust-Kamenogorsk*, 2007.
9. Adolf V.A. Professional competence of a modern teacher: monography. – Krasnoyarsk, 1998.
10. Fercho S.I. Development of teachers' professional competence of using electronic learning editions in learning process. – Almaty, 2004.
11. Bajchonova S.Z. Organizational pedagogical conditions of pedagogues' professional competence development in the process of further professional training. – Astana, 2007.
12. Zhajtapova A.A. Scientific methodological support of teachers' professional growth on the stage of transition to the performance-oriented educational model. – Almaty: RIPKSO, 2004.
13. Zhadrina M.Z. Orientation on performance as a condition of competence approach realization in school. – Almaty, 2004.
14. Fedorov A.V. Specifics of media education of pedagogic universities' students // *Pedagogy*. – 2004. – № 4. – P. 43–51.

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ON THE MEDICAL LABORATORY TECHNICIANS' OCCUPATIONAL COMPETENCES FORMATION WAYS THROUGH THE CASE – METHOD USE

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In the recent years, the search for the new efficient and the spectacular teaching methods has been become especially important and the most actual, in connection with the Russian education modernization course, the secondary vocational education new Federal Government standards introduction, which are laid, as the outcome learning quality, having generated the graduates' general and the vocational competence.

In this connection, the case – method has been drawn our attention, the distinguishing feature and its peculiarity of which are the challenge situation creation, on the basis of the real vocational practice factors. So, the case – method efficient use by the teacher in his teaching practice, due to the principles series implementation: the didactic arsenal diversity and its efficiency; the partnership, and the cooperation with the students; the teacher's role to offset the knowledge translation to their getting process organization, his role constant increasing, as the expert and the consultant; the pragmatism, having driven and oriented by the features and the peculiarities possibilities clear definition of this or that particular case.

The training and the evaluation cases studies differences have already been revealed at the technology creation, the main requirement for the goals, for the objectives, for the content, and for the structure cases have already been developed, especially for each type. So, the special training

specific situations, having prepared by us, have been specially designed and further created, on the basis of the factual material data, for the purpose of the subsequent analysis at the studies, and in the classes. So, the technology has been involved the constant – increasingly complex cases system use, in which the tasks – enquiries for the further addressing and the discussion – are being reflected the emerging vocational competences dynamics. So, in the case study analysis – in the addressing cases, the students are being taught to be acted in «the team», to be made the final analysis, and to be made the correct decisions. Thus, the appropriate methodological support has been supported for each technology realization stage.

We have already developed the method applying technique of the specific situations or the case – method, its further implementation into the educa-

tion process is quite able to be strengthened the practical orientation of the medical laboratory technicians' vocational training, and also to be set the inverse relationship between the future professionals', experts', and specialists' theoretical considerations, the regulations, and the occupational actions.

Moreover, we suppose, that the occupational competences efficient formation in the medical laboratory technologists training is quite be able to be achieved, if the case – technology use will be by the system – forming component in the students' learning and the training activities.

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SOME ASPECTS OF LANGUAGE MODEL IN INFORMATION THEORY

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In the article there are presented some aspects of theoretic-and-experimental approach to evaluation of Russian and Kazakh texts entropy. The methodology suggested is based on the system, multilevel approach to building a complicated hierarchic system of a language.

Keywords: linguistics, entropy, information theory, ordering, scientific text, self-organization

Studying a language by the methods of information theory became a prospective scientific trend investigating complicated systems from the point of view of the self-organization processes taking place in them. Within the limits of this trend there takes place the modeling of a language as a complicated, dynamic, self-organizing system from the disordered state to the ordered one.

When determining the quantity of information there is considered a language text which consists of letters, words, word combinations, sentences, etc. Each letter occurrence is described as a sequential realization of a certain system. The quantity of information represented by the letter indicated is equal in its absolute value to the entropy (uncertainty) which characterized the system of possible choices and which was eliminated as a result of a certain letter selection.

It's known that in order to evaluate entropy it is necessary to have a complete distribution of possible combinations probabilities. Therefore, in order to evaluate entropy of a letter it is necessary to know probabilities of every possible letter occurrence.

Research objective. Our research is conditioned by the necessity to study the text material of various genres with the aim of its improving. Any text is to be formed correctly in style, grammar, syntax, without linguistic mistakes. By means of using mathematical calculations we obtained the values of a letter entropy taking into account one, two, three, four, five or six letters of a text in the Russian and Kazakh languages.

We suggest an ideal model for analyzing the text structure. It is built based on the fundamental law of preserving the sum of information and entropy using Shannon's formula.

In the general characteristic of the text entropic-information (entropy is a measure of disorder, information is a measure of eliminating disorder) analysis we used Shannon's statistical formula to determine the text perfection, harmony:

$$H = -\sum_{i=1}^N p_i \log_2 p_i, \quad (1)$$

where p_i is probability of detecting a uniform system element in their set N ; $\sum_{i=1}^N p_i = 1$, $p_i \geq 0$ $i = 1, 2, \dots, N$.

Before publishing Shannon's theory, Hartley suggested to determine the maximum entropy quantity by the formula:

$$H_{\max} = \log_2 N. \quad (2)$$

Studies in the field of information theory are of a great interest. For linguistics an important measure is the language entropy. It is a general measure of probabilistic-linguistic ties in the given language text. In this connection we carry out a comparison of the data characterizing a numerical evaluation of these measures in the Kazakh and Russian languages.

As the Russian alphabet contains 32 letters (31 letters, one blank), according to this result

$$H_0 = \log 32 = 5 \text{ bits.}$$

H_0 is the maximum value of the text entropy contained in receiving one letter of the Russian text (information contained in one letter) under the condition that all the letters are considered **equally probable**.

Bit is a unit of measuring information.

The Kazakh alphabet contains 43 letters (42 letters, one blank), so according to this result,

$$M \frac{\log 43}{\log m} = M \frac{H_0}{\log m}.$$

Here $H_0 = \log 43 = 5,4$ bits bits.

– the entropy of experience consisting in receiving one letter of the Kazakh text (information contained in one letter) under the condition that all the letters are considered **equally probable**.

Here we are to note that the present day Kazakh Cyrillic alphabet is used in Kazakhstan and Mongolia. In adopted in 1940 alphabet developed by S.A. Amanzholov, there are 42 letters; 33 of them are from the Russian alphabet and 9 are specific letters of the Kazakh language: **Ә, Ғ, Қ, Һ, Ө, Ұ, Ү, Һ, І**. Initially the Kazakh letters were placed after the letters of the Russian alphabet, then each of them was placed after the Russian letters similar in pronunciation. The following letters: **ә, ё** (since 1957), **ф, х, Һ, Ү, Ұ, Ү, Ү, Ү, Ү** are not used in purely Kazakh words. The letters **ё, Ү, Ұ, Ү, Ү**,

ъ, ъ, э are used only in the words which are borrowed from Russian or through Russian and are written in accordance with the rules of Russian orthography. The letter **х** in spoken speech is pronounced as **к**. The letter **һ** is used only in Arabian-Persian borrowings and is often pronounced as a dull sound **х**. The letter **е** in the word absolute beginning can be pronounced as the diphthongoid [ʲe]. The letter **ə** is always pronounced as **е**. The letter **о** in the word absolute beginning can be pronounced as the diphthongoid [ʷo]. The letters **и** and **ы** denote sounds similar to Old Slavonic (before the reduced fall) **ь и ъ**. The letter **у** denotes pseudo-diphthongs **ый, йй**. The letter **у** denotes a non-syllabic sound similar to the Belorussian **ў** and pseudo-diphthongs **уу, уу, уу, уу**.

The following letters (called respectively «soft» or «narrow» and «hard» or «wide») denote the pairs of front and back vowels: **е – а, ө – о, ү – ұ, і – ы**. In the Arabic-Persian bor-

rowings there is also a contraposition **ə – а**. As the emphasis is always on the last syllable, it is not displayed in written form.

As an example there was considered a Kazakh text from scientific style of speech. The material for the experiment served an extract from the manual on music. The text contains 500 symbols with blanks and 431 symbols without blanks [3].

To calculate relative frequencies we used the formula of probability classical determination:

$$P = \frac{m}{n},$$

where n is the number of all the letters; m is the number of the letter considered.

The approximate values of individual letters frequencies in Kazakh are presented in Tables 1 and 2 (the dash denotes a blank between the words). In Table 1 the letters are placed in the alphabetic order, in Table 2 – as far as relative frequencies decrease.

Table 1

Distribution of relative frequency in the alphabetic order

Number	Letter	Relative frequency	Number	Letter	Relative frequency
1.	blank	0,138	23	<i>n</i>	0,008
2.	<i>a</i>	0,112	24	<i>p</i>	0,052
3.	<i>ə</i>	0,01	25	<i>c</i>	0,026
4.	<i>б</i>	0,018	26	<i>m</i>	0,042
5.	<i>в</i>	0	27	<i>y</i>	0,022
6.	<i>г</i>	0,004	28	<i>ҕ</i>	0,002
7.	<i>з</i>	0,008	29	<i>Ү</i>	0,008
8.	<i>д</i>	0,034	30	<i>ф</i>	0
9.	<i>e</i>	0,042	31	<i>x</i>	0,01
10	<i>ё</i>	0	32	<i>h</i>	0
11	<i>ж</i>	0,014	33	<i>ц</i>	0
12	<i>з</i>	0,028	34	<i>ч</i>	0
13	<i>и</i>	0,004	35	<i>ш</i>	0,006
14	<i>й</i>	0,018	36	<i>щ</i>	0
15	<i>к</i>	0,036	37	<i>ь</i>	0
16	<i>қ</i>	0,018	38	<i>ы</i>	0,124
17	<i>л</i>	0,036	39	<i>і</i>	0,032
18	<i>м</i>	0,05	40	<i>ь</i>	0
19	<i>н</i>	0,044	41	<i>э</i>	0
20	<i>ң</i>	0,026	42	<i>ю</i>	0
21	<i>о</i>	0,014	43	<i>я</i>	0,004
22	<i>ө</i>	0,01			

By equalizing these frequencies to the probabilities of corresponding letters occurrence, we'll obtain, based on Shannon's infor-

mation entropy, a formula for calculating the maximum value of the text entropy accounting one letter of the Kazakh text:

$$H_1 = H(\alpha_1) = b \cdot \log_a b = b \cdot \left(\frac{\ln b}{\ln a} \right);$$

$$H_1 = H(\alpha_1) = -0,138 \cdot \log_2(0,138) - 0,124 \cdot \log_2(0,124) - \dots - 0,002 \cdot \log_2(0,002) \approx 4,3598.$$

Table 2

Distribution of relative frequency as far as it decreases

letter rel.frequency	0,138	ы	а	р	м	н	е	т
	0,036	л	д	і	з	ң	с	у
letter rel.frequency	б	й	қ	ж	о	ә	ө	х
	0,018	0,018	0,018	0,014	0,014	0,01	0,01	0,01
letter rel.frequency	ғ	п	ү	ш	г	и	я	ұ
	0,008	0,008	0,008	0,006	0,004	0,004	0,004	0,002

The approximate values of frequencies of two-letter combinations in Kazakh are presented in Table 3 (the dash denotes a

blank between the words). In Table 3 the letters are placed as far as relative frequencies decrease.

Table 3

Distribution of two-letter combinations relative frequencies

combination rel.frequency	ы-	-м	ры	ың	ң -	му	уз	зы
	0,032	0,022	0,022	0,020	0,020	0,020	0,020	0,020
combination rel.frequency	ык	ка	ты	- т	та	н -	і -	а -
	0,020	0,020	0,018	0,018	0,018	0,018	0,016	0,016
combination rel.frequency	ыр	лы	-б	ар	-ж	мы	ал	ық
	0,016	0,016	0,014	0,014	0,014	0,014	0,012	0,012
combination rel.frequency	ас	сы	ба	- к	ам	ен	ер	- х
	0,012	0,012	0,012	0,012	0,012	0,012	0,012	0,001
combination rel.frequency	ха	да	рі	- о	ын	нд	ан	де
	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,001
combination rel.frequency	р -	қт	- ә	ән	ді	- д	п -	ай
	0,008	0,008	0,008	0,008	0,008	0,008	0,008	0,008
combination rel.frequency	ны	ла	ме	жы	ні	із	жа	кө
	0,008	0,008	0,008	0,008	0,006	0,006	0,006	0,006
combination rel.frequency	- а	ды	кү	үй	йл	ле	ол	ыл
	0,006	0,006	0,006	0,006	0,006	0,006	0,006	0,006
combination rel.frequency	- с	рм	қ -	ор	йт	ег	ге	ім
	0,006	0,006	0,006	0,004	0,004	0,004	0,004	0,004
combination rel.frequency	мі	ат	з -	зд	ағ	ға	л -	- ө
	0,004	0,004	0,004	0,004	0,004	0,004	0,004	0,004
combination rel.frequency	се	ед	аң	на	ып	ей	рл	аш
	0,004	0,004	0,004	0,004	0,004	0,004	0,004	0,004
combination rel.frequency	- е	йд	лм	ма	эр	бі	ің	ақ
	0,004	0,004	0,004	0,004	0,002	0,002	0,002	0,002
combination rel.frequency	кс	өр	іп	нд	өп	ым	ыз	өт
	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002
combination rel.frequency	тк	ке	са	йы	өс	е-	тү	аб
	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002
combination rel.frequency	үс	өб	бе	йе	шт	си	ия	яқ
	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002
combination rel.frequency	еш	шқ	қа	ша	ес	ск	кі	ір
	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002
combination rel.frequency	со	то	ығ	ғы	от	ра	ад	- я
	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002
combination rel.frequency	яғ	ғн	ни	и -	он	ст	ау	у -
	0,002	0,002	0,002	0,002	0,002	0,002	0,002	0,002
combination rel.frequency	бұ	ұл						
	0,002	0,002						

Then we'll calculate the conditional entropy $H_2 = H\alpha_1(\alpha_2)$ of the experiment α_2 , consisting in determining one letter of the Kazakh text under the condition that we know the output

of the experiment α_1 , consisting in determining the previous letter of the same text. In accordance with the abovementioned, H_2 is determined by the following formula:

$$H_2 = H\alpha_1(\alpha_2) = H(\alpha_1\alpha_2) - H(\alpha_1) = -0,032 \cdot \log_2(0,032) - 0,022 \cdot \log_2(0,022) - \dots - (0,002) \cdot \log_2(0,002) + 0,138 \cdot \log_2(0,138) + 0,124 \cdot \log_2(0,124) + \dots + 0,002 \cdot \log_2(0,002) \approx 2,3444.$$

Similarly we can determine entropy H_3 .

By equalizing these frequencies to the probabilities of corresponding three-letter combi-

nations occurrence which is expressed by the difference $H_2 - H_3$, we'll obtain for three-letter entropy in Kazakh the approximate value:

$$H_3 = H\alpha_1\alpha_2(\alpha_3) = H(\alpha_1\alpha_2\alpha_3) - H(\alpha_1\alpha_2) = -0,020 \cdot \log_2(0,020) - 0,020 \cdot \log_2(0,020) - \dots - 0,002 \cdot \log_2(0,002) + 0,032 \cdot \log_2(0,032) + 0,022 \cdot \log_2(0,022) + \dots + 0,002 \cdot \log_2(0,002) \approx 0,852.$$

The approximate values of four-letter combinations in Kazakh. By equalizing these frequencies to the probability of corresponding letters occurrence we'll obtain, based on

Shannon's information entropy a formula for calculating the maximum value of the text entropy accounting four letters of the Kazakh text:

$$H_4 = H\alpha_1\alpha_2\alpha_3(\alpha_4) = H(\alpha_1\alpha_2\alpha_3\alpha_4) - H(\alpha_1\alpha_2\alpha_3) = -0,020 \cdot \log_2(0,020) - 0,020 \cdot \log_2(0,020) - \dots - 0,002 \cdot \log_2(0,002) + 0,020 \cdot \log_2(0,020) + 0,020 \cdot \log_2(0,020) + \dots + 0,002 \cdot \log_2(0,002) \approx 0,2813.$$

As a result of using the formula we'll determine entropy H_5 .

Using the classical formula of determining a probability, the calculation of the en-

trophy maximum value accounting five letters of the Kazakh text will make an approximate value:

$$H_5 = H\alpha_1\alpha_2\alpha_3\alpha_4(\alpha_5) = H(\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5) - H(\alpha_1\alpha_2\alpha_3\alpha_4) = -0,020 \cdot \log_2(0,020) - 0,020 \cdot \log_2(0,020) - \dots - 0,002 \cdot \log_2(0,002) + 0,020 \cdot \log_2(0,0020) + \dots + 0,002 \cdot \log_2(0,002) \approx 0,1832.$$

In accordance with the said, to determine conditional entropy H_6 there was evaluated the number of all the six-letter combinations in the text and used the formula of the classical determining of probability:

$$P = \frac{m}{n},$$

where n is the number of all six-letter combinations, m is the number of combinations, for example *music*.

$$H_6 = H\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5(\alpha_6) = H(\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5\alpha_6) - H(\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5) = -0,020 \cdot \log_2(0,020) - 0,020 \cdot \log_2(0,020) - 0,012 \cdot \log_2(0,012) - \dots - 0,002 \cdot \log_2(0,002) + 0,020 \cdot \log_2(0,0020) + \dots + 0,002 \cdot \log_2(0,002) \approx 0,1657.$$

As a result there were obtained the following values (in bits):

H_1	H_2	H_3	H_4	H_5	H_6
4,3598	2,3444	0,852	0,2813	0,1882	0,1657.

From here we can conclude that for the Kazakh language the language entropy decreases with the transition to a higher level of organi-

zation, besides, the text information capacity increases, which proves the language developing in accordance with the law of preserving the sum of information and entropy.

The calculations show that value $H_{\max}$ in Russian (the alphabet contains 32 letters (the letters е и ё, ь и ъ are expressed by the same combination and a blank (–) between the words)) does not practically differ from $H_{\max}$

content of the Kazakh alphabet (42 letters and a blank):

$$H_0 = \log 32 = 5 \text{ bits};$$

$$H_0 = \log 43 = 5,4 \text{ bits.}$$

Now let's see the analysis of the Russian text. We carried out an information-entropy analysis of an extract from the course of lectures on economic theory [4]. The extract presents a text of scientific style in which there are obvious the characteristics and signs of the language of science.

To calculate the scientific text information we counted the probabilities of occurrence of

one letter, two-letter, three-letter, four-letter, five-letter and six-letter combinations in the text. When counting we took into consideration 31 letters of the Russian alphabet (letters е и е, ъ and ь were taken as one letter) and a blank, all the rest symbols (brackets, quotes, commas, etc.) were not considered. The calculations were carried out similar to the Kazakh text using Shannon's information entropy for calculating the entropy maximum value in Russian. The text contains 500 symbols with blanks and 442 without blanks.

In order to calculate each letter relative frequency, it is necessary to divide each letter quantity by the general number of all symbols (500).

Table 4

Distribution of relative frequency in the alphabetic order

Letter	Number of the letter occurrence: number of all the letters	Relative frequency	Letter	Number of the letter occurrence: number of all the letters	Relative frequency
а	26:500	0,052	р	27:500	0,054
б	4:500	0,008	с	24:500	0,048
в	25:500	0,05	т	29:500	0,058
г	4:500	0,008	у	11:500	0,022
д	10:500	0,02	ф	3:500	0,006
е	30:500	0,06	х	2:500	0,004
ж	5:500	0,01	ц	1:500	0,002
з	10:500	0,02	ч	2:500	0,004
и	45:500	0,09	ш	3:500	0,006
й	6:500	0,012	щ	2:500	0,004
к	14:500	0,028	ы	6:500	0,012
л	18:500	0,036	ъ,ь	2:500	0,004
м	9:500	0,018	э	5:500	0,01
н	34:500	0,068	ю	3:500	0,006
о	55:500	0,11	я	13:500	0,026
п	14:500	0,028	space	58:500	0,116

Let's place the symbols relative frequency sequentially, as far as it decreases:

Table 5

Distribution of relative frequency as far as it decreases

Letter frequency	Blank 0,116	О 0,11	И 0,09	Н 0,068	Е 0,06
letter frequency	Т 0,058	Р 0,054	А 0,052	В 0,05	С 0,048
letter frequency	Л 0,036	К 0,028	П 0,028	Я 0,026	У 0,022
letter frequency	Д 0,02	З 0,02	М 0,018	Й 0,012	Ы 0,012
letter frequency	Ж 0,01	Э 0,01	Г 0,008	Б 0,008	Ю 0,006
letter frequency	Ф 0,006	Ш 0,006	Ъ, Ь 0,004	Х 0,004	Ч 0,004
letter frequency	Щ 0,004	Ц 0,002			

As a result of our studies when counting the number of various letter combinations reit-

eration in a scientific text, we came to the following indications:

$$H_1 = 4,364 \text{ bits};$$

$$H_2 = H_{\alpha_1}(\alpha_2) = H(\alpha_1\alpha_2) - H(\alpha_1) = 7,3406 - 4,364 = 2,9766;$$

$$H_3 = H_{\alpha_1\alpha_2}(\alpha_3) = H(\alpha_1\alpha_2\alpha_3) - H(\alpha_1\alpha_2) = 8,123 - 7,3406 = 0,7824;$$

$$H_4 = H_{\alpha_1\alpha_2\alpha_3}(\alpha_4) = H(\alpha_1\alpha_2\alpha_3\alpha_4) - H(\alpha_1\alpha_2\alpha_3) = 8,4656 - 8,123 = 0,3426;$$

$$H_5 = H_{\alpha_1\alpha_2\alpha_3\alpha_4}(\alpha_5) = H(\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5) - H(\alpha_1\alpha_2\alpha_3\alpha_4) = 8,5271 - 8,4656 = 0,0615;$$

$$H_6 = H_{\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5}(\alpha_6) = H(\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5\alpha_6) - H(\alpha_1\alpha_2\alpha_3\alpha_4\alpha_5) = 8,5808 - 8,5271 = 0,0537.$$

Thus, the further counting the texts from one to six-letter combinations is not similar for Kazakh and Russian. Based on the evaluations carried out it can be supposed that in scientific texts in the both languages there takes place a decrease of the uncertainty (entropy) degree with the information increase. Entropy in Kazakh and Russian is equal to (in bits):

In Kazakh

H_1	H_2	H_3	H_4	H_5	H_6
4,359	2,344	0,852	0,281	0,188	0,165

In Russian

H_1	H_2	H_3	H_4	H_5	H_6
4,364	2,976	0,782	0,342	0,061	0,053

Conclusion

Making a conclusion on this study, we would like to note that this fact is explained by a different number of the hierarchic system elements, different number of letters in the alphabets of the Russian and Kazakh languages. The text entropy decrease at the higher levels

justifies the fact that for a multilevel hierarchic system it is very significant to describe a lower level as an interaction of interconnected subsystems, each of which possesses its information characteristics. We established that with transition to a higher level of the hierarchic system which is based on accounting the letter combinations, the information capacity of the texts increases. The approach considered, in our opinion, corresponds to the main requirements of the system entropy-information analysis as in the hierarchic system modeling it ensures its consideration integrity due to general theoretic and methodological conceptions.

References

1. Shannon C.E. Mathematical theory of communication // Proc. on information theory and cybernetics. – M.: IL, 1963. – P. 243–332.
2. Hartley R. Information transfer // Information theory and its applications. – M.: Fizmatgiz, 1959. – P. 5–35.
3. Orazaliyeva M.A. Manual on music. – Almaty: Almakytap baspasy, 2009. – 96 p.
4. Principles of economic theory: Course of lectures. – 2-d ed. / Gen.ed. by A.A. Kochetkov. – M.: Pub.-trad.corp. «Dashkov & Co», 2005. – 492 p.

*Materials of Conferences***OBJECTS AND PROCESSES
IN AUTOMATED DESIGN
OF THE CONDITION OF THE FACE
WHEN DREDGING COAL**

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For the designing of the coal faces technical facilities condition, having interacted by means of processes with the coal massif, it should be performed the following [1, 2, 3]:

- 1) the independent (e.g. separated) objects and the processes separation, by means of which they are interacted, or are changed their condition;
- 2) the objects and the processes functional properties and their differentiation consideration with the use possibility to them the designing methods;
- 3) the objects' development into the individual models;
- 4) the processes and the methods development for their use with one or the objects' group.

So, such methodology has already been created for the stable operation multi – dimensional designing of the complex mining equipment production, for example, in the faces of the coal seams.

In particular, at the underground development in the short, or the long coal face, it can be distinguished, qualitatively, the identical sections of the rocks and the special equipment (e.g. the rocks power, its physical and the mechanical properties, the same type of the lining), and the areas, where they are, principally, different. Such areas can be connected, having made up the whole integrated system, or to have the expressed system planes of their slipping between each other. So, in the same coal face, it can be possible to be considered the intermediate bottom zones with the special artificial rocks strengthening, resulting in the terms of the one unit accession just to another are much different, or the areas, where there are the additional mine working developments, and, fundamentally, the quite different equipment, for example, such as the coal faces pairing with the other rest of the mining massif. Therefore, we distinguish several areas of their designing. One, of which – is the basic one, and the other – are the linear ones (e.g. the repeated ones). For all this, the basic areas may be repeatedly crashed, having reflected the fact, that the possible impact of the intense mining pressure from the mining massif of higher power between the linear sections, for example, such as at the mining terrain sector area overcoming.

So, the automated designing international packages structure on the basis, certainly, – of the

elemental technologies is required the powerful language presence of the object – oriented (e.g. visual programming (OOP). This one, and also the fact, that the standard is provided the control from outside possibilities, for example, on the basis of the C++ type OOP, the «Delphi VB» is provided you to build your design programs with the sites' mix within the application itself (e.g. («Ansys», «Solid-Works», «NASTRAN» and etc.), moreover, the linear areas are built on the copying and the transfer to the given step basis, with the ability to be made introduction within each of them the object and the process blocks, having clarified and distinguished within the specified and the defined framework of their main properties. If, in this case, the geometry is being constructed in the in the blocks of the objects, the materials of the basic properties are being described, then in the process ones the variable characteristics are being described, and also the fractures manifestations conditions, and etc. At the same time, the object blocks can also be differentiated:

1. On the geometry complexity, by the inserts presence from the different materials (e.g. the rocks, the concrete, the metal);

2. According the linear area description: the cavity dimensions for the special equipment displacement, on the coal face form, and the rocks and the coal properties at the coal face, with the rocks disintegration, and etc.;

3. According to the equipment components and its elements at the linear areas sections (e.g. the power characteristics and the lining geometrical parameters);

4. By the equipment elements and the components contact nature between themselves and the rocks.

So, the process blocks are also identified the system state non – stationarity [2], when, depending on the imbalance of the fixing points attachment, this or that state scheme, and the stability loss of the rocks species can be realized and etc.

These or that blocks use is practically determined by the computers' availability for the automated designing and to be performed the calculations, or the possibilities capacity connections to the servers, to the supercomputers accomplished at the operation over the network. For all this, at the same time, the calculations appointment and the time limits for their performance are considered: for the research purposes (e.g. the speed requirements calculating are non – rigid), to be managed the necessary operations in the real time regime. So, in the last case, the time norms are being dramatically decreased, and they are made up to a few seconds, for example, advancing the roof supports auto – mode of the travel. On the basis of the computers, having had the widespread use in the Republic, such calcu-

lations are carried out without any paralleling (e.g. it is not used the parallel programming), and they are taken from 20 up to 60 minutes (e.g. 1 hour). And with the increasing challenges, the calculation time is increased even more. So, the supercomputers use and the parallel programming tasks will be allowed to be reduced the calculation time down to the standard of 0,5–1 min, which is suitable for the partial control mode in the real time regime, when only one calculation is practically performed for the moving sections group, but not for each, separately. In accordance with the implementation of the tasks' solution, on the basis of the finite – element technologies, the designing is divided into the two stages:

- the geometric designing with the necessary data and the system operating conditions introduction;
- the solid – state model building, including the actual design replacement of the grid one.

The Second stage has already been complicated by the fact that the grid is constructed in the modern packages, as a whole, for the collected objects from the system, which is associated with the choice of such a system, when the assigned numbers are sequentially under the construction by the geometric elements, are followed by the previously known algorithm, which is not always possible. Since all these above – listed packages are made in abroad, and they are presented themselves “the black box” by their main program blocks. This is greatly complicated the automated designing systems development – the areas sections have to be built, individually. Therefore, the software volumes in the author's performance are significantly increased at the basic and fundamental researches production on the natural researches management in the underground mining operations production.

The areas section with the pairing mine face with the entry (e.g. the main one), the four linear ones with the primitive equipment of the mine face (e.g. the powered and the mechanized support), the process blocks and the units to be ensured the support contact with the roof lining and the soil, in particular, due to the friction and the adhesion have already been included in the tested model for the mine face. In addition, it has been considered the wall advance with the dynamics modeling possibilities of the rocks collapsing and the collapse rock arch forming in the linear blocks and the units of the mine face. Here, it is also taken into consideration the layers peeling off, their cross – belt, the layer slip (e.g. the simulation by the deformation module). So, for the flat statement of the challenge in the steps of the program calculation, having compared the forming processes priorities, it has made it quite possible to be implemented one of the three possible factors, and then, having prepared the next round and cycle calculation, respectively, it has

been changed the initial and the original data, and the system interaction pattern. So, the work's result has been the interaction system trajectory of the support – wall rocks. Then, the support primitives are quite allowed us to be applied the lining and support model with the sufficiently complete simulation of the hydraulic props work, the roof and the bases, as well as the area sections multiplicity in the mine face. In this case, it is quite possible to be taken into consideration and the slipping fractures, having separated the mine face in its length.

According to [2], the presented model scheme is the efficient one for the moving mine face, and, therefore, with the constant view of the calculation objects destruction (e.g. the rocks, the blocks, and the units). Therefore, the special methodological techniques and the procedures to be managed for the control by the finite – element network construction in the 3D models are required for the destruction and the fractures' trajectories construction calculation. Thus, at the impact modeling upon the massif with the square and the round orifices exposure, having had under the uniform pressure, the pressures picture is not very different on the left and on the right of the holes, that is, it is the symmetric one, at the same time, the principle stresses vectors, which, according to [1], the fracture formation is predicted for the square orifice, despite the use of the one and the same modeling techniques and the procedures, they have dramatically been changed the direction (e.g. to the side of the top horizontal plane of the boundary), at the while, in the other cases, they are directed at the lateral vertical boundaries, that it will be identified and the massif calculated destruction differences. This is due, to the bad visible inaccuracies of the network construction on the left and on the right sides by the corresponding processor, which is required the special measures application at the fundamental challenges solving.

References

1. Beysembayev K.M. The Complex System Non-Stationarity and Their Programming Peculiarities // The Chaos and Structures in the Non-Linear Systems. The Theory and Experiment: The Report's Theses of the 3-rd International Scientific Conference, which is devoted to the 30-th Anniversary of The Karaganda State Technical University after E.A. Buketov. (Karaganda, June, 27 – 28, 2002). – Karaganda, 2002. – P. 39–42.
2. Beysembayev K.M., Zhekenov S.A., Zhetesov S.S., Demchshuk E.N., Shmanov M.N., Tir E.D., Malybaev N.C. – M.: The Coal, 2011. – № 4. – P. 69–71.
3. Beysembayev K.M., Zhetesov S.S., Dyemin V.F., Malybayev N.S., Shmanov M.N. The Practical and Research Aspects of the Mining Machines Development in D: The Monograph. – Karaganda, 2012. – P. 135.

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**EXTRACTION OF NOBLE
AND NON-FERROUS METALS FROM
TECHNOGENIC RAW MATERIALS OF
THE NORILSK INDUSTRIAL REGION:
PRACTICE AND RESEARCHES**

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The largest platinum technogenic deposits of the world are located in the Norilsk industrial region, formed over several decades in the processing of sulphide copper-nickel ores of MMC «Norilsk Nickel» (MMC «NN»). In NN MMC more than 300 million tons of dry industrial waste has been accumulated representing a perspective source of noble metals [1–4].

As additional sources of noble and non-ferrous metals today are considered: stored tails of sulphidic copper-nickel ores enrichment; stored pirrotine and magnetite concentrates; dumps of slags and dusts.

Now for recycling of technogenic waste of NN MMC is offered rather large number of concentrating and metallurgical technologies that are largely focused on receiving a concentrate of noble metals with its further processing in sludge technology.

Tails of Norilsk concentrating factories. The MPG expected resources of concentrating factories tails exceed 800–1000 t. Tails are characterized by the raised contents of platinum (to 2,1 g/t), palladium (to 5,8 g/t), rhodium (to 0,24 g/t), iridium (to 0,044 g/t), ruthenium and osmium (to 0,01–0,05 g/t), gold (to 1,4 g/t), copper (to 0,8 g/t), nickel (to 0,6 g/t) [1].

Actual problem of involvement in production of technogenic waste, including containing PGM, is the creation of the effective and economically reasonable concentrating technology, capable to ensure the qualitative concentrate of valuable components suitable for further processing within existing technologies. Especially as, in tails of enrichment the considerable part of PGM as free mineral allocation is possible to produce rich concentrates by using of gravity separation that will be suitable for processing at the Nadezhdinsky Metallurgical Plant (NMP) [5].

GK «Ruthenium» is practicing modern recycling technology of scatterings of PGMs and gold down the river Shchuchya, in the Norilsk region for a number of years in which upper courses there is a storage of dump tails of Norilsk concentrating factory. Maintenance of MPG in a scattering is 2–3 times more, than in tails, and reaches sometimes tens grams on ton (to 66,6 g/t of Pt, 77,8 g/t of Pd and 18,6 g/t of Au). The applied gravitational scheme of enrichment includes disintegration, classification and additional disintegration in a scrubber, receiving primary concentrate by means of vibrocentrifugal and centrifugal separators, operational development received product to demanded parameters. Extraction of MPG averages 59%, fluctuating from 25 to 67% [6].

The announced results of technological tests of centrifugal separators for processing technogenic dumps showed the possibility of a rich concentrate containing PGMs in an amount up to 20 kg/m.

In NN MMC the technology of additional recovery of MPG from tails of Norilsk concentrating factory is developed by a method of magnetic separation. The sum of Pt, Pd, Rh and Au in magnetic concentrates hesitates ranging from 20 to 40%. For further processing of received magnetic concentrates is offered melting on matte in the presence of charcoal. Also there is an opportunity to send them to a technological chain of Nickel plant as partial substitute of sandstone on ore and thermal melting [7].

According to the project of JSC Mekhanobr Engineering (St.Petersburg) a slurry of the tailings dam of NN MMC, with the maintenance of 20% of solids is subjected to classification (all marked size of material –1,2...0,25 mm), and then fed to the enrichment in the «Knelson» concentrators.

Platinum extraction from sand fraction of the current tailings of disseminated ore enrichment is at 40% at an 0,4% output of graviconcentrate. It is provided to overwork the graviconcentrate with the content of noble metals of 4 kg/t and more in metallurgical manufactory, and below 4 kg/t – as a part of furnace charge of a number of operations of pyrometallurgical repartition [8].

Stored pirrotine concentrates and iron cakes. At floatation enrichment of pirrotine ores of Talnakhsky and October deposits it is formed independent sulphidic product – nickel-pirrotine the concentrate, which stocks in storages make more than 10 million t. Pirrotine concentrate contains to 10 g/t and more MPG, 0,3 g/t of Au, more than 10 g/t of Ag, 1–3% of Ni and Cu, 0,1% With. Noble metals are disseminated in complex and thin composition of sulphidic minerals in the form of impregnations that does the mechanical methods of their separation from breed ineffective [9, 10, 11].

In NN MMC pirrotine concentrate is processed by flotation, preceded by the classification and grinding in ball mills for disclosure compacted grains. Finished concentrate combines with the general Norilsk nickel concentrate of Norilsk processing plant [11]. The disadvantage of this technological scheme is total depletion of the general nickel concentrate and increasing in specific expenses of energy at further pyrometallurgical processing of a material as the pirrotine is rich on iron and a poor product on nickel.

Since June 2009, began involvement in the processing of pirrotine concentrates which has been stored under a water sheet in Kayerkansky coal mine dump, by autoclave oxidizing leaching technology. Pirrotine concentrates in number of 25–30% (masses) are added to pirrotine concentrates of Talnakhsky concentrating factory for their co-processing in hydrometallurgical production of NMZ. The disadvantage of this method are substan-

tial losses of PGM during an autoclave oxidizing leaching [12].

The group of authors developed gravitational and floatation technology of pirrotine concentrates processing which represents allocation of a gravitational concentrate on the devices «Knelson», its enrichment on a concentration table of «Gemeni» (extraction of non-ferrous metals in tails of separation makes 99,0–99,5%) and flotation of tails of enrichment with receiving a rich concentrate on the noble metals, suitable for the subsequent processing in a metallurgical cycle of NN MMC [10].

Magnetite concentrates. Perspective technogenic fields of MPG are the storages of magnetite concentrates created at processing of rich chalkopirite ores of the Talnakhsky field. Those years ferroplatinum from these ores wasn't taken and the maintenance of PGM in dump tails of flotation reached 26 g/t. NN MMC conducts working off of a technogenic magnetite field on gravitational concentrating technology. Use of Knelson concentrators and concentration tables of «Gemeni» allows to receive the gravitational concentrates containing 5–7 kg/t of noble metals and suitable for further processing in a metallurgical cycle. Only for the first year from magnetitovy concentrates 1200 kg of MPG, about 1500 t of nickel and 1000 t of copper [13] are received.

The slag and dust dumps. Perspective sources of noble and non-ferrous metals are slag and dust dumps of dry and wet gas purifications systems of the metallurgical furnaces, accumulated in dumps of NN MMC. For example, in slag dumps of Nickel plant, along with nickel (the contents from 0,04 to 0,12%), copper (from 0,2 to 0,37%) and cobalt (from 0,05 to 0,07%), contains from 1 to 2,2 g/t of the sum of MPG and Au [14].

In work [14] the technological scheme of processing of slags based on application of X-ray radiometric separation is offered. The screening of slag in the class – 10 mm has to precede X-ray radiometric separation. The undersize product after gravitational enrichment can be processed according to the pyrometallurgical or floatation scheme. This technology of additional recovery of noble and non-ferrous metals has to fit successfully in existing on slag dumps production of rubble and a material for adding roads and a filler into concrete. The carried-out technological tests showed reality of such an approach. Processing the previously enriched slags according to the pyrometallurgical scheme is also possible.

In the St. Petersburg Mining University study on development of technology of concoction of noble metals were carried out on samples of a ground precipitation of the slag and dust ponds stores containing totally up to 20% for Cu, Ni, Co. Tests had very high contents (50–100 g/t) the sums of Au, Ag and MPG. It is experimentally shown that collecting of sulphide component of initial material by adhesive flotation in optimum conditions (diesel oil consumption – 20–50% of supply; material

size > 95% of fraction – 44 mkm; L/S = 2–4) at relative simplicity of realization of process provides high rates of concentration of valuable components with receiving the concentrate enriched by 3–5 times on noble metals.

Further processing of the flotoadgezeve concentrate by the combining melting on metallized matte and its subsequent liquid-phase sulfatization at 200°C, L/S = 5, within 6 hours provides receiving a rich concentrate of Pt, Pd and Au (total with the contents not less than 1,5%) with extraction of silver, non-ferrous metals and rare platinoids in sulfuric acid solution.

On the basis of the executed researches it is offered process flow sheet of noble metals concentration from a slag dumps material of NN MMC including as the main stages adhesive flotation, collective melting of a concentrate, sulfate processing of matte with receiving a rich platinum concentrate and sorption of rare platinoids from sulfatization solution. This scheme provides the closed cycle of adhesive flotation with full regeneration of adhesive, receiving selective concentrates of noble metals and possibility of passing extraction of non-ferrous metals [15].

References

1. Dodin D.A., Izoitko V.M. // Ore. – 2006. – № 6. – P. 19–23.
2. Senyutina A.B. // Math. universities. Geology and exploration. – 2006. – № 6. – P. 70–73.
3. Dodin D.A., Neruchev S.S. etc // Mining Journal. – 1997. – № 2. – P. 8–11.
4. Stekhin A.I., Kunilov V.E., Oleshkevich O.I. // Core Taymyr. – 1995. – Issue 1. – P. 85–93.
5. Bought V.E., Ryabkin V.A. etc. // Non-ferrous metals. – 1996. – № 5. – P. 35–37.
6. Samoilov A.G., Shatkov V.A. // Mineral Resources of Russia. Economics and Management. – 2000. – № 1. – P. 45–48.
7. Fedoseev I.V. // Non-ferrous metals. – 2006. – № 3. – P. 39–40.
8. Senyutina A.B. The economic rationale involved in the development of man-made deposits of platinum group metals: the dissertation ... Candidate of Economic Sciences. – M, 2006. – 128 p.
9. Naftal M.N., Shestakov R.D. // Non-ferrous metals. – 2001. – № 6. – P. 43–48.
10. Kaitmazov N.G., Pykhtina B.S. etc. // Non-ferrous metals. – 2001. – № 6. – P. 41–42.
11. Brusnichkina L., Kirillov Y., Bolshakov L.A. // Non-ferrous metals. – 2009. – № 8. – P. 72–74.
12. Dmitriev I.V., Kudrin E.G., Petrov A.F. // Non-ferrous metals. 2010, № 6, p. 70–73
13. Fomichev V.B., Blagodatina Y., Sukharev S. // Non-ferrous metals. – 2000. – № 6. – P. 27–29.
14. Makarov V.A. Precious metals manmade mineral objects Siberian region: resources and the problems of geological and technological assessment. / II International Congress «Non-Ferrous Metals of Siberia – 2010» // Krasnoyarsk: Proceedings. – P. 37–45.
15. Petrov G., Kovalev V. Sulfatizatsionnoe autopsy from pyrometallurgical processing of man-made platinum-containing wastes Note Mining Institute. Innovative technologies in metallurgy and enrichment. – St. Petersburg, 2011. – t.192. – P. 32–35.

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**APPLICATION OF ADDITIVE PFM-NLK IN
SLAG-CONCRETE ON THE WASTE
OF THE NERYUNGRINSKY STATE
DISTRICT POWER STATION REPUBLICS
SAKHAS (YAKUTIA)**

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According to the development plan of South Yakutsk up to 2013, various construction materials will be required, therefore, an urgent need for a qualitative, quick-constructing, and, at the same time, affordable dwellings, as well as low storage building arises. Considering the modern economic condition in the country and republic, it becomes necessary to receive cheap construction materials, particularly concrete wall stones, on local aggregates [1].

Ashes and slag of burning solid fuels (coal of different types, flammable shales, peat) at thermal power stations (TPS) occupy one of the leading positions in volumes of industrial waste. Annual output of ashes and slag exceeds 1 million tons at many TPSs and reaches 5 million tons at power stations that burn multi-ash fuel.

It is known that ashes and slags can be processed into almost any constructing material, items, or constructions, necessary while constructing dwellings and industrial buildings, agricultural objects, roads, hydrotechnical constructions, etc. Nevertheless, the volume of used ashed and slags from TPSs in building remains insignificant – app. 3 % of their annual output [2, 3].

A necessity to use ashes and slags is defined not only by economical concepts, but also by important requirements towards environmental protection. A replacement of natural raw materials by ashes and slags would provide for protecting subsoils. Removing ash and slag discharge will have a positive effect on atmospheric air, as, when distributed by wind over large areas, they impact environment and people's health negatively.

Most of the country's regions search for a possibility to transfer to cheaper local construction materials in order to decrease costs of construction. This article studies implementation of slag from Neryungrinskaya State Regional Power Station and other boilers, sifting granite fraction down to 5 mm, as aggregates of producing cement wall stones that can allow to decrease costs of low-level construction.

In order to decrease consumption of cement we suggest using poly-functional modifier of concrete PFM-NLK. In its consuming characteristics, addition of PFM-NLK according to specification 2493-010-04786546-2001, dd. 01.06.2001 corresponds

to the requirements of GOST 24211 «Additions for concrete and construction solutions. General technical conditions». It refers to the type of plasticizing – water-reducing additions that increase solidity, placeability, and frost-stableness, does not carry corrosion activity towards steel carcass in concrete. First recommendations to use this addition were developed by specialists of Yakut State Project Scientific-Research institute of Building, State Utility Enterprise Scientific-Research Institute of Iron and Concrete. It is a mix of components that are combined in optimal proportions: superplasticizing agent S-3 («POLYPLAST SP-1»), technical ligno-sulphonate (TLS), hydrophobizing silicone liquid GKZH-10(11) [4].

This article provides the composition of concrete at local aggregates of concrete wall stones with implementation of the addition PFM-NLK and without it in order to decrease their cost.

The main objective of this work is to receive solidity characteristics of concrete samples with addition of PFM-NLK and without it at age of 7 and 28 days, and define optimal compositions of concrete and wall stones, used in low-level construction at lower cost.

All materials, used as aggregates in production of slag-concrete wall stones, were tested according to the requirements of GOST. According to the scheme of developing construction material industry in South Yakutiya, there are 8 deposits of building stone in Neryungrinskiy region. Deposit «Granitnoe», located near the town of Neryungri, is in industrial processing.

Sand from siftings of fraction is a non-organic loose material with grain size up to 5 mm. It is received from sifting breakings of rock while producing road metal and from waste of enriching ores of ferrous and non-ferrous metals and non-metal fossils, and from other branches of industry. During the test we defined that sifting of granite breaking, selected from the deposit «Granitnoe» does not correspond to GOST 8736-93; slag of Neryungrinskaya State Regional power station can serve as an aggregate according to GOST 25592-91 (common non-sorted small-grain (M) ash-slag composition with 22 % of grains over 5 mm, pouring density of 395 kg/m³).

Consumption of materials for slag concrete was defined according to prescriptions [5]. Optimization has been carried out through varying consumption of Portland cement, PS slag, and introducing the addition PFM-NLK.

Table provides compositions of slag concrete with using siftings of granite breaking and the received physical-mechanic characteristics at age of 7 and 28 days.

According to the received data we have constructed dependences of slag concrete solidity on Portland cement consumption (Fig. 1), and its density – on consumption of slag from Neryungrinskaya SRPS (Fig. 2).

The results of defining main physical-mechanic characteristics of slag concrete

Number	Расход на 1 м ³ , kg				Water/ Cement	Solidity of concrete composition, c	Solidity of slag concrete, kg/m ³	Solidity under axis compression, MPa, at age of	
	Cement	Granite sifting	Slag	PFM-NLK				7 days	28 days
1	355	620	460	0	0,63	16	1555	5,1	9,2
2	355	445	480	0	0,58	17	1390	3,5	4,6
4	380	435	390	0	0,58	11	1375	3,4	5,5
3	400	480	500	0	0,58	12	1495	5,3	8,2
5	370	650	480	2,2	0,66	14	1710	14,4	19,7
6	400	505	535	2,4	0,60	14	1645	13,2	18,0
7	425	515	535	2,5	0,56	12	1610	10,9	18,7
8	455	465	525	2,7	0,52	16	1620	15,1	16,9

From graphics at Fig. 1 you can see that introduction of concrete modifier PFM-NLK in the composition of slag concrete increases its brand solidity almost two times, however, it decreases insignifi-

cantly under an increase in Portland cement consumption. At the same time, slag concrete without the addition shows a direct proportional dependence on Portland cement consumption.

Solidity limit under compression, 28 days, MPa

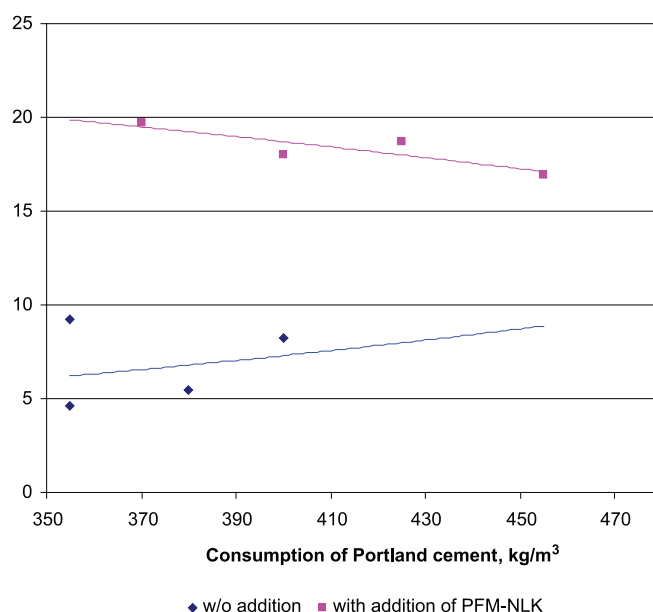


Fig. 1. Dependence of slag concrete solidity on Portland cement consumption and addition of modifier PFM-NLK at age of 28 days

While studying graphics at Fig. 2 we can conclude that along with an increase in slag consumption in concrete composition density of the latter decreases, but, if the modifier PFM-NLK is introduced, we can observe an increase in density of 15% under the same slag consumption. It can be explained by a denser packing of concrete mix aggregates.

As a result of this research we have received slag concrete of different brands of solidity with

addition of modifier PFM-NLK and without it. While making calculations of cost of the developed slag concrete and comparing it with the cost of used heavy concretes we have received the following results: slags M75 without addition cost 46 rubles, with addition of PFM-NLK – 43 rubles, M100 correspondingly – 47 and 45 rubles, in other words, addition provides an economy of 4,3%. In comparison to the cost of heavy concrete blocks M75 – 130 rubles, the economy equals 65%.

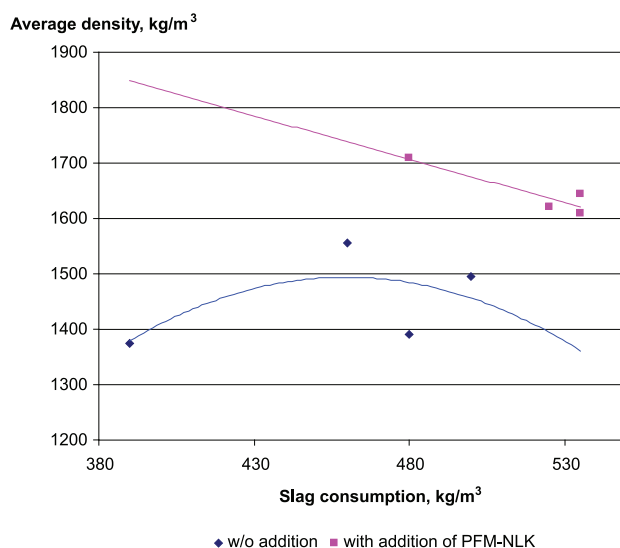


Fig. 2. Dependence of slag concrete solidity on slag consumption and addition of modifier PFM-NLK in dry condition

References

1. Plan of developing construction materials industry in South Yalutiya. – Yakutsk: Government of Republic Saha (Yakutiya), 2007.
2. Dnilovich I.Y., Skanavi N.A. Using fuel slag and ashes in production of construction materials. – M.: High school, 1998. – 72 p.
3. Pavlenko S.I. Small-grain concretes from industrial wastes. – M., 1997. – 176 p.
4. Matveyeva O.I., Vinokurov A.T., Nikolayev E.P. Production of highly-solid concretes at local aggregates // Modern problems of construction and life provision: safety, quality, energy and resource management: materials of the I All-Russian scientific-practical conference (Yakutsk, 28th of March 2008). – Yakutsk, 2008. – P. 49–52.
5. Mayorov P.M. Concrete mixes: prescription reference for builders and producers of construction materials. – Rostov-on-Don: Phoenix, 2009. – 461 p.

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FEATURES OF DESIGN AND CONSTRUCTION OF INDIVIDUAL HOUSES ON PERMAFROST SOIL

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Among basic peculiarities of the Extreme North, which should be considered in engineering, are not only severe climate and permafrost condition of soil, but also economical terms that are conditioned by distance and badly developed territories [1]. When projecting and construction of buildings and installations in conditions of severe climate it's specified to choose the type of foundation, which

will ensure not only the stability of a building but also reduction of consumption of materials, terms of building and labour costs. As practice of building shows, in the North there are usually used columnar, pile, slabby and frame types of foundation. Advantages and shortcomings of traditional types of foundation, which haven't lost currency nowadays, were described in the work [2].

As a rule, individual developer chose the types of foundation and ways of their arrangement that he is able to use on his lot. That's why foundations for private houses, especially when it comes to wood house building, are simplified without taking into consideration of permafrost-soil conditions of the lot, as a result the house begins to sink unevenly in time.

The cost of foundations in the low-rise house building reaches 40% out of general estimated cost, in addition, individual building in Yakutiya (1–2 floor houses) make up more than 50% out of the house building of the republic. Bed constructions for northern regions have been constantly improved and in short time have gone the way of evolution from ordinary rubble tapes to highly industrial and technological piles, the immersion depth of which sometimes reaches 36 m [1].

One of the perspective areas in the northern foundation engineering is arrangement of foundations at the packed soil, what is successfully used at the regions of moderate climate at the pocket weak soils. It's feature is that at the process of foundation building under the base and around side borders there is created a packed soil with heightened indices of density, stability, bearing capacity. Foundation load at the base and side borders is passed firstly on to the packed soil, and then on to the soils of natural build, owing to that there is reached higher bearing capacity of foundations at the soil base.

In conditions of permafrost the industry of building practices a construction of buildings with cold and ventilated cellars. According to the institution of permafrost study SB RAS, the presence of cellar, the temperature of which will be much higher than the temperature of outer air, allows [3]:

- 1) to decrease the infiltration of air through the basement floor of building, which cause uncomfortable temperature regimen of the first floors' surface;
- 2) to improve the thermal resistance of the building;
- 3) to cut down the costs of heat insulation of building' basement part.

In consideration of all these factors, it's reasonable to revive the experience of construction the buildings with warm cellars at the new, industrial level.

For the preservation of permafrost condition of soil bases, mainly, at the individual building there are used band ferroconcrete foundations with ventilated cellar. But in such houses and in houses at piles the temperature regimen of floor is rarely followed, it is usually cold because of insufficient provision with heat insulation and hermetic encapsulation of floor construction. Therefore by decision of scientifically-technical council of the Russian Federation State Committee for Construction, Architectural and Housing Policy in 1994 there was published «The album of technical decisions of basements and foundations of village and settlement building at permafrost soils» [4].

The ways of arrangement of foundations and technical solution to foundations in work [4] were developed for buildings with width more than 9 m when using permafrost soil bases at permafrost condition during the construction and exploitation (principle I by Construction norms and rules 2.03.04–88), for buildings with width less than 9 m – at thaw out condition (principle II by Construction norms and rules 2.02.04–88). Thereby for relatively homogeneous solid permafrost bases of buildings and constructions of small width (to 9 m) there is admitted the thawing of bases at the process of exploitation subject to use of foundations, which are able to take uneven settling (slab, cross bands etc.).

Technical decisions of basements and foundations can be used for bigger nomenclature of dwelling houses, public and industrial buildings without sufficient completion on conditions that constructions, materials and temperature regimens of overground parts are identical, and the width of object according to plan do not exceed designated limits.

An author of these article has used and studied the technical decisions given at the album [4] when building a number of experimental objects: in 2000 – the individual house out of beam; in 2002 – the village school for 80 seats; 2009–2012 – wooden frame houses [5], with the use of developed multilayer constructions of wall fences and items at the base of power efficient materials out of local raw materials [6–8].

The account methods of buildings' basements and foundations on the permafrost soils at the operating normative documents rely on empirical dependence and do not take into consideration the changes of temperatures and processes of heat-mass exchange in conditions of exploitation. Nowadays the possibility of more accurate account of soils' temperature field in buildings' basements with the use of increased capacities of computer engineering and wide development of mathematical modeling methods has appeared. It has become possible to develop numeral models with great degree of detail and exactness, which take account of the majority of determinative factors of soils basement buildings' heat exchange. Therefore for the explanation of trustworthiness of developed mathematical account models we carry out surveys on location of temperature regimen of experimental houses' soil bases.

References

1. Mestnikov A.E. Heat protection of buildings: materials, items and constructions / A.E. Mestnikov, P.S. Abramova, T.S. Antipkina, A.D. Egorova. – M.: Publishing house ACB, 2009. – 236 p.
2. Goncharev Y.M. Effective constructions of foundations on permafrost soils. – Novosibirsk: Science, 1988. – 193 p.
3. Actual problems of building, housing and communal complexes of RF (Y): Materials of republic scientifically-practical conference 6-7 of April 2004. / Edited by L.P. Yakovleva, F.F. Poselskiy, A.E. Mestnikov etc. – Yakutsk: Publishing house YSU, 2004. – 270 p.
4. Kutvitskaya N.B. The album of technical decisions of basements and foundations of village and settlement buildings on permafrost soils. – Yakutsk: the Russian Federation State Committee for Construction, Architectural and Housing Policy, 1994.
5. Kardashevskiy A.G. Monolithic foam concrete at individual building / A.G. Kardashevskiy, A.E. Mestnikov, V.N. Rozhin, S.S. Semenov // Industrial and civil building. – 2012. – № 1. – P. 41–43.
6. Egorova A.D., Mestnikov A.E., Narodov V.V. etc. The way of heat insulation and wall covering with tiles // Patent of Russia № 2361985 RF. 2009. Bulletin № 20.
7. Egorova A.D., Kardashevskiy A.G., Kushkirin P.I., Mestnikov A.E., Shestakov A.E. Building wall block // Patent of Russia № 84035. 2009. Bulletin № 18.
8. Mestnikov A.E., Kardashevskiy A.G., Kornilov T.A. Multilayer monolithic wall // Patent of Russia № 119769. 2012. Bulletin № 17.

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RESOURCES OF PRECIOUS METALS IN TECHNOGENIC OBJECTS OF MINING AND METALLURGICAL COMPLEX OF RUSSIA

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At present, global reserves of platinum group metals (MPG) include over 100 thousand tons. Three large ore areas share about 90% of them: Bushveld (South Africa), Norilsk (Russia) and Great Dayka

(Zimbabwe), thus the main production of MPG is carried out from raw materials of ore fields of the Republic of South Africa and Russia [1].

The most important aspect of the sustainable development of the Russian platinum complex and strengthening its position in the world market of MPG is expansion and restructuring of platinum metals mineral base. Russia has a powerful potential to increase resources and stocks of the platinoids because of involving in processing technological wastes of polymetallic ores. All of the large global manufacturers of MPG possess technogenic objects of the various importance, but only the largest technogenic platinum fields are connected with the Russian mining and metallurgical complex [2].

As additional sources of platinum metals in Russia it is expedient to consider tails of enrichment of sulphidic copper-nickel ores, stored pyrrhotite concentrates (LPK); stored magnetite concentrates and dumps of dusts and slags of mining-metallurgical company Norilsk Nickel (NN), and also technogenic platinum-chromite scatterings of the Urals and Aldan.

Norilsk technogenic deposits. In NN MMC significant loss of platinum metals (20%) are related to the enrichment of the primary sulphide copper-nickel materials. Application of the developed concentrating flow sheets with a wide range of operations (gravity, enrichment in heavy suspensions, flotation, etc.), focused mainly on the concentration of non-ferrous metals, a large amount of roughing operations and, accordingly, the formation of significant amounts of semi-products, in various degree of containing MPG, leads to irrevocable technogenic dispersion of noble metals.

In a metallurgical cycle of processing of sulphidic concentrates of non-ferrous metals the main part of platinum metals are collected by anode slimes of electrolysis of copper and nickel. In NN MMC processing of slimes is carried out on the technologies providing receiving rich platinum concentrates, meeting requirements of refining production. MPG losses in a metallurgical cycle are estimated at 3-5% and are connected mainly with dump slags and dusts of melting and roasting processes. It should be noted that partial return of semi-products formed in primary production leads to circulation of part of platinum metals in a production cycle.

In NN MMC more than 300 million tones of the dry platinum industrial waste representing a perspective source of noble metals has been accumulated whereas the reduction of part of rich ores in the commodity mass of Norilsk deposits leads to the decreasing volume of a domestic production of MPG [1, 2].

Norilsk technogenic platinum deposits has been accumulated within several decades in processing of rich sulphidic copper-nickel ores. Formation of technogenic mass of the Norilsk industrial region is accompanied by course of the active geomechanical processes that determine the conditions of migra-

tion of noble metals and their redistribution. Set of these processes in combination with other natural and technology factors defines two tendencies in formation of technogenic fields of MPG – migration of platinum metals in products of a technogenic complex and their localized concentration promoting the emergence of extremely rich zones on platinoids.

Storage of dump products of enrichment and metallurgical production is characterized by low orderliness of storage and mixing of polytypic products (dumps of discarded ores and overburden, tails, slags, dusts, stored pyrrhotite concentrates, ground precipitations of ponds stores, etc.) that was especially shown at the first stage of functioning of NN MMC when processing rich sulphidic ores, and later pyrrhotite ores.

Tails of concentrating factories. The MPG expected resources of tails of concentrating factories exceed 800–1000 t. The largest of Norilsk technogenic fields is the tailings dam of Norilsk concentrating factory No. 1 with an area of 6,2 sq.km with the general stocks not less than 240 million t of dump tails.

The material of the tailings dam is presented by homogeneous mass containing from 0,2 to 5,5 g/t PGM. In the tails remains the same set of platinum minerals as the original copper-nickel ores. Stored tails are characterized by the raised contents of platinum (to 2,1 g/t), palladium (to 5,8 g/t), rhodium (to 0,24 g/t), iridium (to 0,044 g/t), ruthenium and osmium (to 0,01–0,05 g/t), gold (to 1,4 g/t), copper (to 0,8 g/t), nickel (to 0,6 g/t).

Stored pyrrhotite concentrates and iron cakes. Ores of Talnakhsky and October fields are presented by pentlandite-chalcopyrite-pyrrhotite variety featuring a high content (30–60%) of Fe_{1-x}S pyrrhotine. During the flotation of pyrrhotite ores it independent sulphidic semiproduct – nickel-pyrrhotite concentrate is formed. Because of the relatively high yield and high content of MPG this concentrate represents a unique source of receiving platinum metals, especially rare platinoids which are found only in the form of solid solutions in pyrrhotite and pentlandite.

Depending on the mode of nickel and pyrrhotite flotation in a Norilsk pyrrhotite concentrate it is taken: 13–28% of Ni; 4–6% of Cu; 15–30% Co; 15–30% of the MPG [3]. Chemical, mineralogical and grain-size composition of nickel-pyrrhotite concentrate are defined by the set of initial ores and enrichment conditions. Average contents of iron and sulfur are up to 20–25 and 12–17 tons per 1 ton of contained nickel. Despite significant progress and efficiency of modern methods of autogenous melting, direct processing of such material on matte in the conditions of Norilsk before essential increase of the price of MPG was considered as the unprofitable. Nickel-pyrrhotite concentrate has been stored for many years in tailing dams which are today a serious polluting factor: the firm part is inclined to dusting, and the presence of an artificial reservoir in

which the material is treated with flotation reagents, leads to soil erosion, changes in the cryogenic environment and pollution of waste water.

Stored pyrrhotite concentrate consists of very small particles (the maintenance of a class of – 0,045 mm makes 57–95%) that significantly complicates its processing. It represents a mix of oxides of silicon, calcium, aluminum, magnesium (35–40%), sulfides of non-ferrous metals (3–6%) and iron in the form of magnetite (10–15%) and pyrrhotite (35–45%). Stored pyrrhotite concentrate contains up to 10 g/t and more PGM, 0,3 g/t of Au, more than 10 g/t of Ag, 1–3 % of Ni and Cu, 0,1 % Co [4, 5].

Total reserves in pyrrhotite storages are about 10 million tons, estimated expected resources of platinum and palladium are more than 100 tons, gold – 3 tons, silver – 100 tons, nickel and cobalt – over 500 thousand tons. Noble metals are disseminated in complex and thin composition of sulphide minerals in the form of impregnations making ineffective mechanical methods of their separation from the rock. In addition, changes in the properties of sulfide minerals during storage greatly reduces the effectiveness of traditional technologies for the processing of stored sulfide materials.

Magnetite concentrates. Perspective technogenic fields of PGM are the storages of magnetitovy concentrates created by processing of rich chalkopyrite ores the Talnakhsky field in 1975. Those years ferroplatinum from these ores wasn't recovered and the maintenance of PGM in dump tails of flotation is 26 g/t.

The dumps of slags and dusts of pyrometallurgical processing. Slag dumps and dusts of systems of dry and wet gas purifications of the metallurgical furnaces are perspective source of noble and non-ferrous metals, saved up in shlakopylevy dumps of NN MMC.

The dusts and gas cleaning waste products are collected by a part of the PGM in pyrometallurgical operations processing of copper-nickel ores. Dusts are represented by small-sized particles of slag, matte and a metallic phase which are formed by the foaming of melts with sparging and oxidation of sulphides. PGM are collected in the metal phase of Fe–Cu–Ni structure, pure iridium and silver, newly formed sulfides, selenides and tellurides of platinum metals, condensates of volatile compounds – oxides of osmium, ruthenium, iridium and silver. Dust scrubbing systems are characterized by higher contents of osmium, ruthenium and iridium from base-line ores dominated by platinum and palladium.

Resources of noble metals (gold + PGM) on a slag dump of Nickel plant are estimated at more than 20 t. The content of metal in slags is extremely uneven.

Overall, the maintenance of noble metals in slag dumps (total content of PGM and Au on various dumps from 1 to 2,2 g/t) and their resources allow to suggest metallurgical slag dump as a

potential material, in which except noble metals Ni – 16 thousand tons (content of 0.04 to 0,12%), Cu – 52 thousand tons (content from 0,2 to 0,37%) and Co – 11 thousand tons (content from 0,05 to 0,07%) are concluded. In samples of dusts and slags significant correlation of maintenance of Cu, Ni, Co and noble metals is observed that allows to assume reasonably possibility of receiving MPG, gold and silver by methods of enrichment of a concentrate of non-ferrous metals.

The Ural technogenic fields. Two-centuries operation of platinum fields of Ural formed rich reserves of platinum-technological-chromite deposits, most of which are related to the two main industrial sites – Isovsky and Nizhny Tagil. In technogenic Ural scatterings prevail microparticles of minerals of MPG and gold with an average size of 2–12 microns with fluctuations from 1–2 to 20–30 microns which can not be extracted by standard gravity methods when in the development of primary scatterings. Valuable components of the Ural technogenic fields are presented with more than 30 types of minerals of PGM, pure gold and silver, chrome spinel, magnetite and ilmenite. The main platinum minerals of scatterings are isoferroplatinum and tetraferroplatinum. Technogenic deposits of Ural contain tens tons of PGM (mainly platinum, osmium and iridium), tens of thousands of tons of high-chromium platinometal chromium spinels and tons of associated gold.

Siberian technogenic fields. It is necessary to pay attention to technogenic stocks of the platinum chromites formed at working off of platinum scatterings of Aldan (the Inaglinsky and Kondersky field). The chromite concentrates allocated at enrichment of scatterings, belong to chemical type ($\text{Cr}_2\text{O}_3 < 48\%$, $\text{Cr}:\text{Fe} < 3:1$). Representing complex raw materials, chromites contain to 0,5–1 g/t of the PGM, primarily located in scattered forms that are difficult to concentrate by enrichment methods. Annual technogenic accumulation of chromites makes to 50 thousand tons? and in this connection, the problem of allocation of platinoids from them is not less actual, than extraction of the main component – chrome. Cost-effective chemical and metallurgical processing of mine, rather small technogenic fields of chromites, can be only be realized in the production of commodity chrome compounds (e.g., expensive chromic anhydride or metal chrome) and passing platinum product directly at working off of scatterings, including mobile modular installations, immediately after separation of a placer platinum concentrate in a concentrating cycle [6].

Summarizing, it is possible to note that researches of the last years show that objects of secondary platinum raw materials are various by the nature, the content of metals, scales of accumulation and the economic importance. Secondary resources, despite large volumes, are characterized by the unstable maintenance of MPG and non-ferrous metals. Forms of finding of platinum metals in tech-

nogenic raw materials are that the raw materials are persistent for processing with use of traditional technological schemes. Thus cost of extraction of MPG from technogenic fields sometimes happens lower, than at enrichment of initial ores and sand as the expensive operations connected with production are excluded from a technological chain, by crushing, crushing and classification.

The essential circumstance constraining involvement of technogenic materials in processing, is that they are considered by the large mining enterprises first of all as the geotechnical systems providing long-term storage of mining waste, and to a lesser extent as secondary mineral resources. From these positions perspective concession development of technogenic platinum fields with use of modern hydrometallurgical technologies is represented.

References

1. Petrov G.V., Greiver T.N., Lazarenkov V.G. The current state and prospects for production technology of platinum metals in chromite ore processing. – St. Petersburg, Nedra, 2001. – 200 p.
2. Dodin D.A., Izoitko V.M. // Ore. – 2006. – № 6. – P. 19–23.
3. Naftal M.N., Shestakov R.D. // Non-ferrous metals. – 2001. – № 6. – P. 43–48.
4. Kaitmazov N.G., Pykhtina B.S. etc. // Non-ferrous metals. – 2001. – № 6. – P. 41–42.
5. Senyutina A.B. // Math. universities. Geology and exploration. – 2006. – № 6. – P. 70–73.
6. Petrov G.V. Concentration of platinum metals processing platinum-traditional and non-traditional materials. – SPb.: Saint-Petersburg Mining Institute, 2001. – 106 p.

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THE COMPOSITE BUILDING MATERIALS ON THE BASIS OF THE FOREST COMPLEX WASTE WOOD

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In the past two decades, the waste wood integrated management is given the quite serious attention and the consideration. So, the wood particle boards and the wood – fiber – glass panels production has been reduced, to some extent, the junk waste and the worthless waste products amount, but millions of tones of them are being left in the forests, in the woods, in the heaps of the woodworking plants, they are simply being burnt, and etc.

So, the waste wood use is quite presented the extremely topical and actual one, in the direction of the rather and the very valuable product receiving – the furfural, and also its derivatives. So, the furfural polycondensation with the acetone is quite allowed by us to be obtained the FAM resin, which is the bonding agent at the resistant – chemically

constructional and the lining composite building materials (CBM) production.

Thus, the CBM creation has been the main goal of our developments, with the high corrosion resistance, under the highly aggressive and the corrosive environment conditions of the electrolytic productions, and, in addition, they are able to be withstood the long operational loads. So, this type of the material has been called the fiber – glass polymer concrete (FGPC) [1], or, at the new terminology, – the fiber – glass composite material (FGCM).

So, the sufficient wetting by the resin (e.g. adhesive) of the fiber – glass reinforcement (e.g. the substrate), having contained the lubricant, and, having introduced into the polymer – concrete mixture during the molding process, is the necessary condition for the FGCM monolithic structure formation. For all this, there is: the micro– and the macro–fiber–glasses introduction into the resin; the adhesive large molecules diffusion to the substrate surface through practically almost remote lubricant's rather very thin layer, having deluted, as a result of the polymerization exothermic reaction high temperatures, and, then – the hydrogen bonds adequate strength establishment, having closed the adsorption process. So, the system hardening, which is followed by the oligomers' molecules cross – linking, is the last stage of the strong adhesive bonds creation, in the section zone of the fiber – glass – polymer matrix.

Thus, we have already used, at the same time, three theories – the surface wetting theory and the mechanical and the molecular adhesion theories, for the bonds formation mechanism to be explained in the section zone. The lubricant is played the plasticizer layer role, which is helped to be increased the FGCM strength, as a result of the shear stress local removal, having generated in the section zone of the fiber – glass – polymer matrix, due to the large shrinkages of the FAM resin, and also, in view of the elastic moduli and the thermal expansion coefficients difference of its components. So, the polymer matrix environment does not affected negatively upon the fiber – glass reinforcement main properties, having provided the FGCM high long – termed strength and the stiffness, having operated under the liquid aggressive and the corrosion media of the chemical productions, the increased temperatures (e.g. up to 100°C), and the electric current conditions. So, the proposed theoretical conditions viability of the FGCM monolithic structure formation has been confirmed experimentally [1; 2]. The FGCM on FAM has been shown the high efficiency at its use, as the structural material of the processing bath enclosures, the tanks, the settling tanks [3], the chemical – resistant precast monolithic floors, having subjected to the complex exposure of the constant load, the liquid and the gaseous aggressive and the corrosive media, the temperature, and the electric current.

So, this material can be used for the housing units of the wood – chemical productions, for ex-

ample, the slush collection in the process of the thermal decomposition of the wood, the energy chemical plants and the installations for its further processing, the acetic acid productions by the extraction method, the special equipment in the ethyl acetate, the furfural production, and also in the WFGCM outer layers, in order to be further improved its fracture strength.

So, the new direction in the Forestry and the Woodworking industries – is the creation on their basis the sleepers and the ties for the railways, including the timber – carrying, the logging, and also the street car and the subway routes.

If we consider, that the sleepers and the ties service life in the way is made up 13–19 years (e.g. 156–228 months), therefore, it is in 6–7 times less, than the reforestation term of this age. So, the main reasons and the causes of the wooden sleepers and its ties out of their service is their mechanical wear and the decay, and it is the primary reason and the cause is exactly the deterioration and the wear, because of which from 30 up to 60% of the stacked sleepers and the ties are being failed at all. Thus, this is explained the main reasons and their causes of their acute shortage.

So, the FAM resin, and also the wood [3, 4, 5] preliminary analysis chemical composition and the main properties have been permitted to be highlighted the following working hypothesis: the new constructional corrosion – resistant wood fiber – glass composite material (WFGCM), the matrix of which the FGCM [1] can be served, having described above, and the reinforcing filler – the wood chips, is quite able to be created at the theoretical basis and the experimental verification of such fact the FAM oligomer compatibility and the wood.

So, the potential chemical reactivity of the WFGCM components concerned us has already been identified. As it has been noted above, the wetting, which is followed by the second act of the FAM and the wood interaction – the physical adsorption, having carried out by the Van-der-Waals forces is the initial warranty examiner occurrence connection between the resin (e.g. adhesive) and the wood (e.g. the substrate). So, it its turn, the physical absorption is taken its place, simultaneously, with the dipole – dipole interaction, and, in this case, there are the hydrogen bonds. The molecules structural diagrams analysis of the WFGCM interacting components, having formed the FAM resins – mono- and difurfurilidenacetones and the wood – cellulose and the lignin, has been shown the hydrogen bonding emergence possibility by the dipole – dipole interaction and the interaction of these hydroxyle groups to be formed the ester bonds scheme, which is contributed to the durable adhesive joints in the section area between the phases, which has been confirmed, experimentally. So, the process is ended by the system hardening, having led to the wood reinforcing filler compression, due to the shrinkage forces [2, 3, 4]. From the above material, it is quite clear, that the

adhesive joint emergence process is very complex, and its phases are interwoven in time.

So, the return on the capital investments in the sleepers' production from the WFGCM is taken its place in four times quicker, in comparison with the composite ties, having used in Japan. They are much convenient to be carried out, with the terms of their operation for the all types of the railways owners, and, above all, the timber industry complex – the main furfural producer, having obtained from the wood waste, and the reinforcing filler – the wood chips.

As the need in the corrosion – resistance structural materials in the RF and abroad is quite huge and enormous, then the forestry industry and the wood chemistry productions may be their main suppliers. So, this will be improved the environmental and the social situation in the regions, having harvested and the processed timber, since they can be used in almost practically all the waste timber complex; the new jobs and the working places will be created, which is very significant and extremely important at the development present stage of the Russian State.

References

1. Kharchevnikov V.E. The Fiber – Glass Polymer Concrete – the Corrosion – Resistance Materials for the Chemical Plants and Productions Constructions. – Dissertation...Dr. of the Technical Sciences. – M., 1983. – 424 p.
2. Kharchevnikov V.E. The Possible Justification for the FAM Polymer Concrete Use on the Andesite with the Different Types of Reinforcement, as the Structural Material of the Railway Sleepers / V.E. Kharchevnikov, T.N. Storodubtzeva, O.P. Pluzhnikova. – Dep., M., 1992, Issue 1. – 18 p.
3. The Fiber – Glass Polymer Concretes from the Wood Wastes / V.E. Kharchevnikov, T.N. Storodubtzeva, L.N. Stadnik, and etc // The Forest Industry. – 1993. – № 3. – P. 19.
4. Storodubtzeva T.N. The Composite Material Fracture Strength Wood-Based for the Railway Sleepers at the Hardening and Full Wetting. The Dissertation Abstract, The Candidate of the Technical Sciences. – Voronezh, 1999. – 20 p.

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VIRTUAL SCIENTIFIC SOCIETY AND NETWORK TECHNOLOGIES AS FACTORS OF INDUSTRIAL AND INNOVATIVE DEVELOPMENT

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Presently science has acquired a number of new peculiarities. Evidently, formal sciences have taken leadership roles. This is attributed to the internal and external reasons. Development of the easily accessible personal computers, wide usage of Internet, transmission of 3D images, development of

programs for data processing drastically influenced the process of consciousness, ways of communication between scientists, self-analysis of a person and the system of values of the scientific community. The essence of this revolution might be briefly explained as a modification of logics of researchers' activity and thinking.

Impetuous development of informational technologies and formation of informational communities are at the forefront of the generic characteristics of the mankind development in 20–21 centuries.

And there are following changes in this world of digital technologies:

1. Scientific community has been divided into implicit sub-groups. One sub-group is focused on the development and improvement of information systems, computing and modeling within frameworks of its own discipline/direction.

2. The center of pro-active science and Hitech has been shifted from West to East (Russia, China, Japan). Concept of unbound rationality, developed in post-neoclassical science, has been reflected in the fact that continental and American science of 20–21 c reoriented towards eastern thinking. Prigozhin I. and Stengers I. stated «We strongly believe that we are on a way to the new synthesis and new concept of nature. Probably at some point we will be able to merge western traditions, which pay primary attention to experimental design and quantitative formulations, and such tradition as Chinese is, with all its conceptions on spontaneously changing and self-organizing world» [1, 65].

3. Leadership and status of the model developed into the category of formal sciences – a set of sciences, which deal with researching of formal systems. Key formal sciences include logic, mathematics, theoretical computer science, theory of information, theory of systems and theory of decision-making, statistics. Subject of the sciences of this group is a unity of abstract objects, not connected with external world. There are rules therein that allow for use of variety of symbols in line with syntax interpretation without considering semantic and notional substance.

4. The approach to raising scientific issues and way of thinking of scientists have also changed and were influenced by computer revolution.

5. New type of scientific community was formed – virtual communities. Virtual communities emerge and function in electronic space (through Internet) to support scientists in their professional endeavours. And, currently, we can observe the move towards sustainability by uniting these communities into non-governmental associations.

Information is the key notion in the chain of values of a virtual community paradigm. It becomes the only type of resource, which the mankind is not wasting in its historical development, but, on the contrary, it creates and accumulates

information exponentially with the help of formal sciences and IT. Informational space of the science includes the units of information, presented in the form of scientific facts, empirical generalization, challenges, hypothesis, theories, fixed in certain language forms, the mechanisms and means of development, processing, dissemination and uses of scientific information, the structures, languages and institutions in which this information is fixed, stored and translated, as well as the channels of internal and external communication, the means of organization of scientific knowledge and support of institutional forms in which science and scientific communities exist. Network technologies become the major basic structure, which organizes science space. Overall democratization of science and significance of international cooperation in the products of scientific research accompany this process. Virtual communities are characterized primarily by prompt and free conversion of information and unique educational opportunities. For this type of community there is a necessity of its own paradigm. Its outline is already formed, but there is no deep research of this theme in the frameworks of the science philosophy. It is also necessary to note the new technological opportunities of the virtual communities for organization of scientific researches. One of them is use of methods of distribution of calculations among thousands of computers, connected to Internet; another – improving a dialogue between scientists of various countries worldwide based on available electronic translators. We hope that current issue of insufficient fluency in various languages, which is a break on scientific progress, will be resolved. Most probably it will be addressed by specifically developed language of world science, which will be more formalized one than modern English with its variations – American, British, Australian. In the context of quick communications, up-to-date information and scientific knowledge similarly rapidly become obsolete, but is constantly renewed.

For verification of our hypothesis we have collected empirical facts and conducted philosophical generalization based on the work with IIA.

International Informatization Academy (IIA) is an independent and self-governed public association of people sharing same views in the cognition of the nature of information, information technologies, environmental and information-analytical activities, informatization of society and development of the common informational cyberspace and society. IIA is a 'third sector' in the Republic of Kazakhstan.

The notion of the 'third sector' is presently widely accepted in the global terminology and associated with non-commercial, philanthropic initiatives ('first sector' is governmental, 'second' is commercial). In some cases the 'third sector' is acting quicker and more effectively than state structures.

IIA mission is to develop national informational infrastructure and to integrate the Republic of Kazakhstan into the global informational community based on strict scientific methods. The Academy implements its mission within economic spheres, collaborating with state structures, civil society, international organizations, mass media and social sphere. Its role in the system of scientific communities IIA sees in proactive supporting of the infomatization process of Kazakhstani community and the organization of virtual scientific communities.

IIA proposes the following much needed products for business:

1. Development of spheres of interest.
2. Assistance in search of high professional specialists for expansion of virtual communities, since IIA is an intellectual association on a wide range of scientific directions.
3. Information support and optimization of scientific activities.
4. Development of the concept of philosophy and corporate spirit of the virtual communities. G. Ford noted that production is not just an implemented «business theory», but something beyond that; it is a theory which primary task is to create from a world of things a source of happiness, which will support life freedom.
5. Provision of expert services at high professional level by the virtual communities of the members of IIA.

Virtual communities function in these directions with the overall aim to solve emerging issues. Experience is accumulated and norms and standards are formed as elements of the new paradigm. As opposed to the views of T. Kun, the elements of the paradigm of the virtual community are formed in a new environment which is provided for the non-governmental organizations and are returning through networks to the communities representatives. Ignoring this fact leads to slowing the pace of the scientific progress and, finally, to locking of the scientific community (including also in the US) in their own rules and technologies, which lose gradually its effectiveness in a global world.

Presently, there is a struggle ongoing between the countries worldwide for ability to develop and incorporate effective organizational, commercial and technological innovations. Most of the researchers link contemporary sources of economic growth to a greater extent to informational technologies and products of virtual scientific communities as compared to capital and labour force. Development of the new technologies is one of the priority direction of modern economies. Targeted system of a series of activities towards development, application, implementation and commercialization of innovation becomes a norm as opposed to sporadic and isolated innovation.

There is a number of reasons for innovations development and implementation. Among the most important are technological break-through and obsolescence of products, services or technologies. In the contemporary world innovative economy ensures global economic leadership and competitiveness of the country which invests in it. The core basis for innovative development is formed from the key areas of hi-tech and new forms of governance.

Based on the recommendations and theoretical products if the virtual scientific community the innovative development is introduced through a series of activities and projects, which are aimed at consistently incorporation and development of hi-tech and scientific governance targeting integral effectiveness. Innovative development unites all spheres influencing upon a common result (state program, governance, marketing, personnel capacity development, finances, export, etc.)

In the context of the globalization and international competitiveness most of the countries have less chances to become competitive at the world market, with the exception of economically strong states (USA, EC, Japan, China, etc.) and small countries with powerful scientific production and services (Finland, Sweden, Denmark, Norway, Israel, etc.) As a possible way out of this situation countries with lower level of competitiveness shall seek integration with states with the same level of development (global experience show that integration of developing countries with developed ones only aggravates a difference between them) and shift to innovative development. The main precondition for this shift is agreed common innovative policy and unified innovative legislation, based on the best global innovative practice.

Due to its advantageous geographical location, Kazakhstan may become a transit center of the Eurasia, thus, connecting East and West and this predetermines the necessity of the transport infrastructure development. The selected model of industrial-innovative development in the context of integration is aimed at positioning of Kazakhstan as service-technological regional center. This is why the core directions of public policy for development of innovative economy become strategic priorities of industrial-innovative development of Kazakhstan, which will build the demand for the products and services and competitive advantages of the country in the global economy.

References

1. Prigogine I., Stengers I. Order out of chaos: The new dialogue with nature. – M., 1986. – P. 65.

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**THE BASIC RESULTS RECEIVED
AT FRAGILE ENVIRONMENT
DESTRUCTION BY PLASTIC SUBSTANCES,
THEIR SCIENTIFIC SIGNIFICANCE
AND PRACTICAL USE**

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The efficiency improvement increase of the mineral resources deposits development is one of the priority directions of the further mining engineering development in the Russian Federation (RF), on the basis of the new methods introduction of the rocks disintegration. So, our country is the most well provided with the natural resources by the state for the extended period, in which the bulk of the domestic product is accounted for the fuel and the energy complex.

Along with this, it is observed the gradual increase in the products consumption from the natural stone, as in the country, well as in the world. So, in the Russian Federation (RF), it is not associated with the further increase in the production and the technological possibilities potential of the domestic enterprises for its mining, and also their processing, and it is, mainly, performed, due to the imported products use.

At present, the industry development level on the natural stone extraction and its further processing is sufficiently high enough in the world. Moreover, more than 70% from the total products consumption from it, it is practically accounted for the construction industry. However, because the complexity, the diversity, and constant mining and geological conditions changes of the further development, it cannot be completely eliminated the labor – intensive methods use of the breaking, some of which are the blast hole ones. So, with their help, at present, it is extracted almost 25% of the natural stone throughout the world. In this regard, their improvement relevance and the actuality are continued to be preserved, for example, through the plastic substances introduction, having increased the mining operations efficiency in the natural stone breaking, under the presence conditions of the natural or the artificial fractures.

So, this already made work's aim has been concluded in the physical and technical bases development for the fields and the deposits of the natural stone directed destruction and their disintegration with the plastic substances and their materials use, thereby it is enabled us to be addressed the challenge of the quality increasing and the cost reduction of the building stone block production, under the natural or the artificial fracturing of the rock mass massif conditions. So, this already made idea's aim has been concluded in the natural stone directed destruction and their disintegration by the injection of the plastic substance and their material into the

formed fractures from the blast holes, previously having drilled through the intended spalling, and the hit it by the barbell.

As a result of its implementation, there have been formulated the following basic scientific regulations:

- it has been found, that when hitting the bar on the plastic substance and its material, having found in the blast hole, the longitudinal and the transversal fractures are appeared in the natural stone: the longitudinal ones are directed along its axis, and the cross ones – across, and, thus, with the further increasing its sizes, the both fractures are tended to be moved from the elliptical form to the circular one;

- it has been found the advancement front lag regularity of the injected plastic material and its substance in the longitudinal and the transversal fractures from the front to be promoted the fractures themselves; and this gap is characterized by the hyperbolic dependence: for the longitudinal fractures the advancement front lag of the injected plastic material and its substance is made up 1,11 m at the front of the most advance fracture itself 1,21 m, and at the advancement front lag of the injected plastic material and its substance 1,36 m the fracture advancement front is made up 1,56 m, for the longitudinal fractures the advancement front lag of the injected plastic substance and its material is made up 0,51 m at the front of the most advance fracture itself 0,61 m, and at the at the advancement front lag of the injected plastic substance and its material 0,63 m the front of the most advance fracture itself is made up 0,83 m;

- it has been found the power intensity change regularity of the plastic material and its substance injection into the transversal fracture from the blow energy size to it by the rod; so, this change is characterized by the logarithmic dependence: at the amount the bar hitting energy by the plastic substance and its material 15 J the energy power of its injection into the transversal fracture is made up 71 J/m², while the amount the bar hitting energy by the plastic substance and its material 20 J the energy power of its injection into the transversal fracture is made up 24 J/m²;

- it has been found the ratio increase regularity of the fracture area to the zone area of its filling by the plastic substance and its material from the increase of the hitting energy impact on it by the rod; and this increase is characterized by the logarithmic law;

- it has been found the diameter size increase regularity of the transversal circular fracture from the bar energy impact increasing on the plastic substance and its material, which is in the blast hole; so, this dependence has the logarithmic character: at the value of the bar impact hitting energy on the plastic substance and its material 20 J the transversal circular fracture diameter is made up 87 mm, while the amount of the bar impact hitting energy on the plastic substance and its material 40 J the

transversal circular fracture diameter is made up 120 mm.

Thus, the scientific novelty of the work is laid in the fact, that:

- it has been found the change dependence in the forms of the longitudinal and the transversal fractures on the amount of the plastic substance and its material, required for their further development, at the directed destruction and the disintegration of the stone, which has the natural or the artificial origin;

- it has been found the change dependence of the boundary lag of the plastic substance and its material promotion from the fracture propagation border, having formed by it at the shock injection of the plastic substance and its material into the blast hole in the process of the directed blocks separation of the natural stone;

- it has been found the change dependence of the injection power intensity into the transversal fracture of the plastic substance and its material, having found in the blast hole, from the hitting impact energy on it by the bar at the directed destruction and the disintegration of the stone, which is the natural or the artificial origin;

- it has been found the change dependence of the fracture area ratio to the zone area of its filling by the plastic substance and its material from the hitting energy impact on it by the rod at the directed destruction and the disintegration of the stone, which is the natural or the artificial origin;

- it has been found the change dependence of the transversal fracture diameter size from the impact energy by the rod on the plastic substance and its material, having found in the blast hole, at the directed destruction and the disintegration of the stone, which is the natural or the artificial origin.

The scientific significance of the work is laid in the fact, that for the first time:

- it has been found, that the longitudinal and the transversal fractures form, having obtained at the shock injection into them of the plastic substance and its material from the blast hole, is changed from the elliptical up to the circular one, at the directed destruction and the disintegration of the stone, which is the natural or the artificial origin;

- it has been found the advancement front lag regularity of the injected plastic substance and its material in the fractures from the front to be promoted the fractures themselves, at the directed destruction and the disintegration of the stone, which is the natural or the artificial origin;

- it has been found the power intensity change regularities of the plastic substance and its material injection into the transversal fracture, its diameter size, and also the fracture area ratio to the zone area of its filling by the plastic substance and its material from the blow energy to it by the rod, at the directed destruction and the disintegration of the stone, which is the natural or the artificial origin.

The practical significance of the work is laid in the following:

- in the method and the technical facilities introduction of the directed destruction and the disintegration of the stone of the natural origin, by the shock injection of the plastic substance and its material into the fractures from the blast holes, having drilled through the intended spalling in LLC «Mramor or Marble» (Novosibirsk Region), and the artificial one – in LLC «Prostor» (the city of Novosibirsk);

- in the method and the installation development for the laboratory works carrying out by the directed destruction and the disintegration of the natural and the artificial stone in the Novosibirsk State Architectural and Building University.

Thus, the actual challenge of the physical and technical bases further development for the fields and the deposits of the directed destruction and the disintegration of the natural stone, having carried out by the plastic substance and its material injection into the blast holes, previously having drilled through the intended spalling of the stone blocks, and the hitting on it by the bar, has already been solved in the work. This can be improved the quality and to be reduced the cost of the building stone block production under the rock mass massif the natural or the artificial fracturing conditions.

Thus, the main scientific conclusions and the practical results of the work are laid in the following:

1. It has already been found, that at the directed destruction and the disintegration in the block of stone separation from the massif, by the plastic substance and its material injection into the blast holes, having drilled through the intended spalling, the necessary value of the tensile stresses, having generated, for all this, at the tip of the fracture, especially, for the marble, it is, practically, made up 88 MPa.

2. It has already been found, that the plastic substance and its material, having embedded in the formed fractures, at the directed destruction and the disintegration of the natural stone, is provided the destructive capacity during 2–3 days and nights (e.g. 48–72 hours) just after its injection into the blast holes, through the intended spalling blocks.

3. It has already been found, that for the directed destruction and the disintegration at the block of stone separation from the massif, by the shock injection of the plastic substance and its material into the blast holes, having drilled through the intended spalling, the portable tools are quite preferred with the impact energy up to 100 J, which are able to be formed the circular fractures with the diameters up to 2 m, which is corresponded to the most popular blocks mass size, having supplied to the special plants for the stone sawing.

4. It has already been found, that the method of the natural stone directed destruction and the disintegration with the use of the plastic substances and its materials in their mode of their shock injection from the blast holes into the already formed fractures can be combined used with the well – known

methods of the rock failure at the block of stone separation from the massif; for all this, while the splitting off the planes, in which the blast holes with the plastic substance and its material are practically used, that may be coincided with the planes of other blast holes methods of the breaking.

5. It has already been found, that for the transversal fracture formation at the bottom level of the blast hole at the shock injection of the plastic substance and its material into it, it is practically required the impact energy, than for the longitudinal fracture formation along the entire length of the blast hole, having begun from its mouth.

6. It has already been found, that for the efficiency increase of the directed shock injection of the plastic substance and its material into the blast holes, the drilled through the intended spalling blocks, it is quite necessary to be increased the impact energy and to be reduced their frequency; this is due to the fact, that the internal pressure, that can be bio-accumulated just in the plastic substance and its material, by applying it to the shock, does not have enough time to be relaxed during the time between them.

7. The method and the special technical facilities of the directed destruction and the disintegration of the natural and the artificial stone have already been introduced, by the shock injection of the plastic substance and its material into the fractures from the blast holes, having drilled through the intended spalling, in the mining, and as in the industrial, well as in the civil construction and their building.

8. The method and also the installation for the laboratory works carrying out by the directed destruction and the disintegration of the natural and the artificial stone in the Institutes of higher education of the building structure have already been developed and introduced.

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THE DYNAMICAL PROSESSES ADAPTIVE STABILIZATION IN THE ROBOT ELECTRIC DRIVES CONTROL SYSTEM

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The adaptive regulator application efficiency in the electric drives control system DC of the robot manipulation link has been carried out in the study. The control system dynamics adaptive stabilization has already been implemented, by means of the direct transfer coefficient modifying of the electric drive control regulator. In its turn, this is caused the whole system simplification with the adaptive control regulator with its technical implementation. This system simulation in the MATLAB (e.g. Sim-

ulink) medium has been carried out. The comparative evaluation of the electric drives simulation systems results with the adaptive control regulator with the traditionally used coordinate regulation method has been conducted. So, it has been shown, that the electric drives adaptive control regulator in the system application is provided the manipulator's desired dynamic characteristics. The similar approach to the robot manipulators electric drives system construction can be applied to the overwhelming majority types of the commercially industrial available robots.

The degrees' electric drives of the manipulation robots mobility are subjected the variable loads, which are caused by their configuration changes in the process of the motion, the weight and the dimensions of the cargoes transported, and also by the technological factors and the others. The electric drives load can be varied within the wide limits, and be caused the significant change in the dynamical properties of the electric drive control system [1, 2]. All these systems' peculiarities and the specific features should be considered at the manipulation robots designing.

The Control Dynamics Stabilization Method

So, for example, the degrees electric drives dynamic coupling of the mobility for the flat manipulator, having worked in the polar coordinate system, and having considered in the paper [3], is quite seen in the fact, that the moment of inertia of the angular displacement electric drive load of the manipulator is the variable quantity, and it is depended on the linear extension of the r hand:

$$I_n(r) = I_1 + I_{2c} + m_2 \left(\frac{l}{2} - r \right)^2, \quad (1)$$

where I_1 – the moment of inertia of the 1-st level of the manipulator, relative to the axis of rotation $I_1 = \text{const}$; I_{2c} – the moment of inertia of the 2-nd level of the manipulator, relative to the central axis, which is parallel to the axis of rotation. The inertial load variability of the angular position of the electric drive, due to the changes of the manipulator's linear position, is resulted in the quality worsening of the control process by it. This is the well – known challenge, which can be solved, for example, by a certain way, the manipulator's dynamics stabilization.

Here, in order to be improved the further quality improvement of the control process, in the result of the interaction reducing of the manipulator's electric drives, is proposed to be used together with the traditional coordinate control by the manipulator of the optimal adaptive regulator. So, the adaptive regulator implementation is carried out by means of the separate unit, which depending on the manipulator's configuration, automatically, according to the expressions for the values of the gain coefficients in the main chain of the electric drive feedback, it, moreover, is calculated the value of the correction adaptive signal. The adaptive signal is supported the optimal specified value of the gain

coefficient, and, simultaneously, it is stabilized the gain coefficient of the electric drives system.

The Improvement of the Method

The present paper is dealt with the adaptive stabilization challenge solution, by the method further improving, having described in [3], the adaptive control method, and the study of its efficiency, by quality further improving the quality of the dynamical processes flow in the electric drives control system DC of the robot manipulation link. The adaptive control implementation is not in the chain of the feedback position (e.g. with the simultane-

ous stabilization of the system gain coefficient), is one from the further improvements, and by means of the direct transfer coefficient modifying of the electric drive control regulator, that is caused the system simplification with the adaptive regulator and its technical implementation.

Then, in accordance with the method [3] and with due regard for the expression (1), the optimal values of the variable gain coefficient in the direct chain of the electric drive angular movement of the hand, depending on its linear extension r , are defined by the following expression:

$$k_{\phi_i}^{opt}(r) = \left[C \left(A + B \left(\frac{l}{2} - r \right)^2 \right)^{3/2} + D \left(A + B \left(\frac{l}{2} - r \right)^2 \right)^{-1/2} \right]^2, \quad (2)$$

$$\text{where: } A = I_{dv} + I_p + \frac{I_1 + I_{2c}}{z^2 \eta}; \quad B = \frac{m_2}{z^2 \eta}; \quad C = \frac{2\alpha_1}{c_e \alpha_2} \left(\frac{R_y^3 z}{c_m^3 k_{um}} \right)^{1/2}; \quad D = \frac{c_e}{2} \left(\frac{c_m z}{R_y k_{um}} \right)^{1/2}.$$

Here, I_{dv} – the moment of rotor inertia of the actuating motor (AM); $I_p = (0,05 \dots 0,25) \cdot I_{dv}$ – the moment of reduction gear inertia, has been given to the motor shaft; z – the reduction gear ratio; η – the reduction gear efficiency; R_y – the active line resistance of the AM armature winding; c_e – the cross – ratio counter EMF motor; c_m – the AM torque coefficient; k_{um} – the transfer coefficient of the power amplifier drive; α_1, α_2 – the normalizing factors.

For the technical implementation simplification of the work algorithm (WA), it is also advisable to be carried out the non – linear expression linearization (2), by the method of the least squares:

$$k_{\phi}(r) = ar + b, \quad (3)$$

and, in this expression, the a and b linearization constants are defined for the different i -th line positions of the r_i hand, by the following correlations:

$$a = a(r_i, k_{\phi_i}^{opt}); \quad b = b(r_i, k_{\phi_i}^{opt}), \quad (4)$$

where $k_{\phi_i}^{opt}$ – the gain coefficient value for the r_i value, having defined by the non – linear expression (2).

The Control Dynamics Study

In the control process quality study by the manipulator, the mathematical models of the manipulator's electric drives have been considered, in the form of the block diagrams of the automatic control system (ACS), in which the simplified transfer functions of the AM electric drives are presented themselves the ACS aperiodic links, as the DC motors with the separate excitation (DCM SE) are used, as the AM ones. For all this, the DCM SE dynamics of the electric drive of the manipulator's angular moving with the variable load inertia moment can be presented by the transfer function of the aperiodic link with the variable time constant:

$$\frac{\Omega_{dv}(p)}{u_y(p)} = \frac{k_{dv}}{T_m(r)p + 1}; \quad (5)$$

where $u_y(p)$, – respectively, the stress on the AM operator pictures, and the AM armature winding, the AM shaft speed; – the AM gain coefficient; $T_m(r)$ – the DCM SE electromechanical time constant, the manipulator's angular moving electric drive. So, the latter one is depended on the AM given to the shaft $I_{np}(r)$ drive load inertia moment, which, in the considered case, is the function of the linear position r hand:

$$T_m(r) = \frac{I_{np}(r)R_y}{c_e c_m} = \left(I_{dv} + I_p + \frac{I_n(r)}{z^2 \eta} \right) R_y / c_e c_m. \quad (6)$$

Having taken into account the expression (1), we will be obtained the expression in the general form, that is characterized the dynamical effect of the electric linear movement of the servo drive for the manipulator's angular movement:

$$T_m(r) = \alpha r^2 + \beta r + \gamma \text{ [c]}, \quad (7)$$

where:

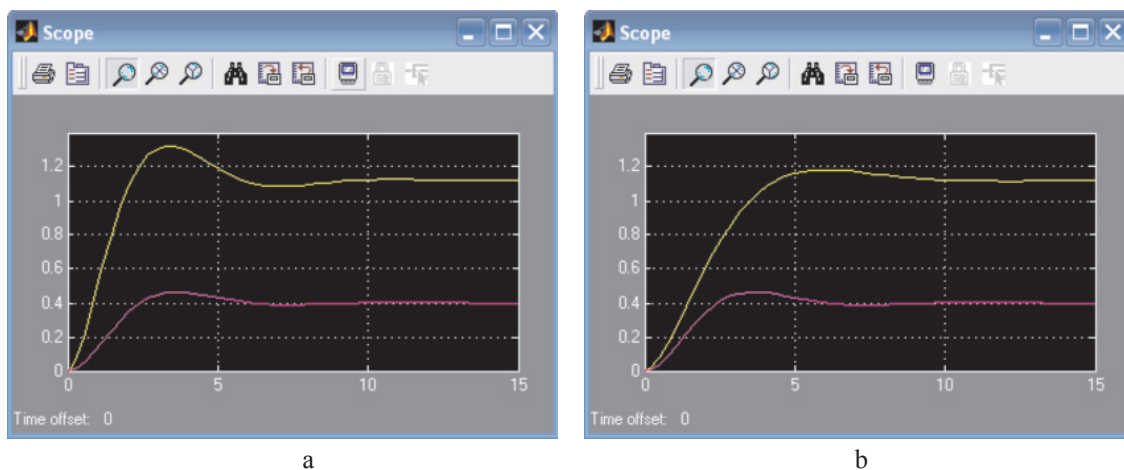
$$\begin{aligned} \alpha &= \frac{m_2 R_y}{z^2 \eta c_e c_m} \text{ c / m}^2; \\ \beta &= -\frac{2rm_2 R_y}{z^2 \eta c_e c_m} \text{ c / m}^2; \\ \gamma &= \left(\frac{I_{dv} + I_p + I_1 + I_{2c}}{z^2 \eta} \right) R_y / c_e c_m, \text{ c.} \end{aligned}$$

The Simulation

The control process quality study by the manipulator has been made, with the help of the computer simulation in the MATLAB (e.g. Simulink) medium. In the study, the motor control systems model has been considered by the DC electric drives link robot manipulator with the adaptive regulator, in comparison with the traditional system model of the regulation to be coordinated by the manipulator with the degrees' mutual influence of the mobility.

The transient processes oscillograms have already been obtained at the electric drives systems developing with the adaptive regulator and the coordinate regulation of the stepped input influence signals, in the vicinity of the characteristic (e.g. from the point view of the drives interaction) points of the manipulator's working plane, corresponding to the maximum, average, and the minimum r hand

extraction and its nomination. The value of the overshoot and the t_n transient response time have been accepted, as the criteria for the adaptive regulator impact assessing for the system's dynamic properties. So, the transient processes oscillograms for the cases with coordinate regulation and with the adaptive control regulator have already been given, for example, in the Figure.



The transient processes oscillograms:

a – for the case with the coordinate regulation; *b* – for the case with the adaptive regulator

The Results Discussion and the Conclusions

With the manipulator's movements, in the vicinity of the characteristic points, corresponding to the maximum and the minimum $r_{\max}$ and $r_{\min}$ hand's extractions, in which the moment of inertia of the electric drive load manipulator's angular position has the maximum magnitude $I_{l_{\max}}(r_{\max}, r_{\min})$ value override processes in the electric drive of the angular motion without the adaptive regulator, which are the most: the average value $\sigma_{mn} = 30\%$. But, if you move the manipulator's gripper, in the vicinity of the characteristic point, corresponding to the average r_{mn} hand's extraction, hence, the minimum value of the load moment of inertia of the manipulator's angular position $I_{l_{\min}}(r_{mn})$, the magnitude of the overshoot and the response time process in the electric drive of the angular motion without the adaptive regulator – $\sigma = 8\%$, $t_n = 3$ mkc, while in the system with the adaptive regulator – $t_n = 3$ mkc, and the overshoot is absent – at the constant transient processes characteristics of the electric drive line.

Thus, the linear adaptive regulator application to be maintained the optimal ones, the system's gain of coefficient values, depending on the manipulator's configuration, is provided the dynamical processes flow further improvement in

the electric drive with the variable inertial load, and, hence, the qualitative indicators of the manipulation process. So, the similar approach to the electric drive system construction of the manipulation robots can be applied to the overwhelming majority types of the commercially available industrial robots.

References

1. Arpabekov M.E. The Research and Creation of the Mountain Robotized Technological Complexes with the Adaptively – Programmed Control. The Dissertation... of the Doctor of the Technical Sciences. – Almaty, 2010. – P. 342.
2. Medvedev V.E. The Regulators' Automated Synthesis of the Servo Drives Manipulators in Order to Stabilize Industrial Robots Dynamic Properties. The Dissertation... of the Candidate of the Technical Sciences. – M., 2006. – P. 169.
3. Tuleshov A.K., Ozhikenov K.A. The Dynamics Analysis of Manipulator Servo Drive. // The Proceedings of the National Academy of Sciences of the Republic of Kazakhstan (NAS RK). The Section of Mechanics and Machine Building. – 2010. – № 3 (271). – P. 91–95.

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*Materials of Conferences***NATIONAL FACTOR IN THE ERA OF GLOBALIZATION: THE PROBLEM OF PRESERVING THE CHUVASH INSTRUMENTAL TRADITION**

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For centuries, the Chuvash ethnic music, as a specific form of reflection of life, history, religious beliefs and the nation's world views, has been formed as a special and in many ways unique artistic phenomenon. An important prerequisite for the Research of Traditional Music is the establishment and analysis of musical events in the context of the spiritual and cultural life of the nation in different periods of its history. Closely associated with the traditional activities and the nation's mentality, that had been shaping for centuries, the instrumentalism was a powerful factor in the ethnic culture, sometimes more stable and conservative than the ethnic self-conscience and even the domestic speech.

The origins of the Chuvash folk music is to be found in the cultures of the ancient ethnic Chuvash ancestors, first of all in Turkic-speaking tribes that appeared in the Volga region in VII–VIII centuries AD, as well as in the cultures of other ethnic groups, with which the first Chuvash tribes contacted in their cohabitation places in the Volga region, in Northern Caucasus, and even earlier, in Central Asia.

Rich traditions of instrumental and vocal music, that were formed in the multifunctional syncretic complexes of the ancient art, had created important prerequisites for the forms of the major performing folk music. The Chuvash musical archaic is not limited with simple primitive forms, it brings the signs of a highly developed art in itself. The level of its development was sufficient not only to absorb the surrounding cultures' achievements, but also to influence them.

Musical instruments, their names, descriptions or production methods are often the only source of information about the remote past musical life. The relevance of the musical instrument research nowadays increases not only due to the adjustment and testing of many well-established conclusions about the musical traditions of the nations, but also due to the new methodological approach formulation to the research, since the traditional Chuvash instrumentalism is a phenomenon not only musically – artistic, but also historical, social and ethnic. Developing according to the laws of the internal evolution, it retains archaic elements dating back to different stages of ethnogenesis and the historical past of the nation.

Based on different descriptions of travelers, composers and ethnographers, as well as on ex-

peditionary and archival researches we can speak about more than fifty kinds of musical instruments. Despite the importance of instrumental music, that was heard in the Chuvash life everywhere in songs or played on its own, this art in XX century was eroded faster than the vocal. This concerns both the performance tradition and the art of instrument production as well.

Archeology sheds some light on the question of the instruments of the Volga Bulgars. In excavations they found clay whistles, bone tubes from multilateral flutes, metal frames of plucked idiophones like a jaw harp. Such data, in spite of their small numbers, confirm the active functioning of the traditional musical culture of the Volga Bulgars and the influence on the neighboring nations of the Volga region.

Being simultaneously the memorial of material and spiritual culture, the instrumental music in its specificity provides a rich material for the research of the early epic periods, its development and transformation. Collectors and researchers have not left us any musical notes. All the musicians who performed the Chuvash music, played by ear without using the European musical notation system. The musical recordings made by professional musicians, as a rule, were overwhelmed by various clarifications and additions, that made it difficult to continue reading from a sheet. The fruitful research of instrumental performance, its live-sounding materials became possible with new methods of material fixing.

The invention of the recording technique revolutionized ethnomusicology. Phonocylinders, records, tapes, disks have become the main standard audio documentation. At each new stage of technique development the quality of the recording was becoming higher and in its turn the imaginative feeling was fuller. In certain areas the recordings began to displace the notations. From the hundreds of expeditionary recordings ten on average are quoted. Disc issues compete seriously with musical publications. Currently hardware and software restoration are in very high demand.

Today the research of Chuvash ethnic instrumental music is just at a start, but already on the basis of available audio materials we can solve some important problems. Currently, modern technical facilities allow to record sounds of Chuvash musical instruments, produce their spectral and timbre analysis, compare the height and the sound quality of the instrument with the height and quality of the real sound. New forms of field research of the traditional musical performance may be of great help in this work. Besides, studying the melodies and rhythms, the analysis of techniques and playing the

musical instrument technology is also very important: the position of the lips on the aerophone, fingering and articulation, the strokes, vibrato, changing positions, types of string pizzicato. All these details help understand the musicians' style better.

The study of ethnic musical traditions in the modern conditions gets particular importance, because it focuses on the problems of the globalization influence on the musical culture of XXI century, on the dialogue of different cultures, that are of great scientific and practical interest, their intercultural dialogue is an integral part of the cultural strategy of UNESCO.

The researches of particular relevance are the studies on the problems of the modern science of ethnic music, organology, ethnomusicology, sociology, ethnic music and ethnopedagogics of early XXI century, as well as on the preparation of highly qualified scientists, teachers and masters for the production of traditional musical instruments that are unique monuments of material and spiritual culture.

In the era of globalization, the ethnic identity is exposed to major transformations due to the result of the destructive influence of mass culture, mass migration problems and multiculturalism policy. The spread of the same cultural patterns around the world, the open borders to cultural influence and the growing cultural communication force to speak about the process of the globalization of modern culture.

The globalization of culture is a process of integration of individual ethnic cultures into the single world culture through the development of transport means, economic relations and communications. During these contacts many traditional forms of life and ways of thinking disappear. All these are compounded by the unresolved historical problems, mainly geopolitical, leading to a change in the boundaries of political and economic spaces.

Not using the traditional, living for centuries, cultural symbols it's impossible to get involved into the line of succession of cultures, it is impossible to feel the history as a single process with a certain past and that's why the certain present and, most importantly, the future. It is well known that, for all its diversity in the world musical culture, the further accumulation and development of ethnic instrumental music is in the same context of the evolution of each individual nation. Because of this, Chuvash musical culture is not the sum of the differences, but the system of similarities and differences. This versatile feature allows to compare the Chuvash national tradition with other musical civilizations, makes them equal great, despite the differences in the extent of its influence.

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ETHNIC CULTURE IN THE ERA OF GLOBALIZATION: THE ACTUAL HISTORICAL AND ETHNOGRAPHIC STUDY OF CHUVASH INSTRUMENTAL MUSIC

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For centuries, the Chuvash ethnic music, as a specific form of reflection of life, history, religious beliefs and the nation's world views, has been formed as a special and in many ways unique artistic phenomenon. An important prerequisite for the Research of Traditional Music is the establishment and analysis of musical events in the context of the spiritual and cultural life of the nation in different periods of its history. Closely associated with the traditional activities and the nation's mentality, that had been shaping for centuries, the instrumentalism was a powerful factor in the ethnic culture, sometimes more stable and conservative than the ethnic self-conscience and even the domestic speech.

The origins of the Chuvash folk music is to be found in the cultures of the ancient ethnic Chuvash ancestors, first of all in Turkic-speaking tribes that appeared in the Volga region in VII-VIII centuries AD, as well as in the cultures of other ethnic groups, with which the first Chuvash tribes contacted in their cohabitation places in the Volga region, in Northern Caucasus, and even earlier, in Central Asia.

Rich traditions of instrumental and vocal music, that were formed in the multifunctional syncretic complexes of the ancient art, had created important prerequisites for the forms of the major performing folk music. The Chuvash musical archaic is not limited with simple primitive forms, it brings the signs of a highly developed art in itself. The level of its development was sufficient not only to absorb the surrounding cultures' achievements, but also to influence them.

Musical instruments, their names, descriptions or production methods are often the only source of information about the remote past musical life. The relevance of the musical instrument research nowadays increases not only due to the adjustment and testing of many well-established conclusions about the musical traditions of the nations, but also due to the new methodological approach formulation to the research, since the traditional Chuvash instrumentalism is a phenomenon not only musically – artistic, but also historical, social and ethnic. Developing according to the laws of the internal evolution, it retains archaic elements dating back to different stages of ethnogenesis and the historical past of the nation.

Based on different descriptions of travelers, composers and ethnographers, as well as on expeditionary and archival researches we can speak about more than fifty kinds of musical instruments.

Despite the importance of instrumental music, that was heard in the Chuvash life everywhere in songs or played on its own, this art in XX century was eroded faster than the vocal. This concerns both the performance tradition and the art of instrument production as well.

Archeology sheds some light on the question of the instruments of the Volga Bulgars. In excavations they found clay whistles, bone tubes from multilateral flutes, metal frames of plucked idiophones like a jaw harp. Such data, in spite of their small numbers, confirm the active functioning of the traditional musical culture of the Volga Bulgars and the influence on the neighboring nations of the Volga region.

Being simultaneously the memorial of material and spiritual culture, the instrumental music in its specificity provides a rich material for the research of the early epic periods, its development and transformation. Collectors and researchers have not left us any musical notes. All the musicians who performed the Chuvash music, played by ear without using the European musical notation system. The musical recordings made by professional musicians, as a rule, were overwhelmed by various clarifications and additions, that made it difficult to continue reading from a sheet. The fruitful research of instrumental performance, its live-sounding materials became possible with new methods of material fixing.

The invention of the recording technique revolutionized ethnomusicology. Phonocylinders, records, tapes, disks have become the main standard audio documentation. At each new stage of technique development the quality of the recording was becoming higher and in its turn the imaginative feeling was fuller. In certain areas the recordings began to displace the notations. From the hundreds of expeditionary recordings ten on average are quoted. Disc issues compete seriously with musical publications. Currently hardware and software restoration are in very high demand.

Today the research of Chuvash ethnic instrumental music is just at a start, but already on the basis of available audio materials we can solve some important problems. Currently, modern technical facilities allow to record sounds of Chuvash musical instruments, produce their spectral and timbre analysis, compare the height and the sound quality of the instrument with the height and quality of the real sound. New forms of field research of the traditional musical performance may be of great help in this work. Besides, studying the melodies and rhythms, the analysis of techniques and playing the musical instrument technology is also very important: the position of the lips on the aerophone, fingering and articulation, the strokes, vibrato, changing positions, types of string pizzicato.

All these details help understand the musicians' style better.

The study of ethnic musical traditions in the modern conditions gets particular importance, because it focuses on the problems of the globalization influence on the musical culture of XXI century, on the dialogue of different cultures, that are of great scientific and practical interest, their intercultural dialogue is an integral part of the cultural strategy of UNESCO.

The researches of particular relevance are the studies on the problems of the modern science of ethnic music, organology, ethnomusicology, sociology, ethnic music and ethnopedagogics of early XXI century, as well as on the preparation of highly qualified scientists, teachers and masters for the production of traditional musical instruments that are unique monuments of material and spiritual culture.

In the era of globalization, the ethnic identity is exposed to major transformations due to the result of the destructive influence of mass culture, mass migration problems and multiculturalism policy. The spread of the same cultural patterns around the world, the open borders to cultural influence and the growing cultural communication force to speak about the process of the globalization of modern culture.

The globalization of culture is a process of integration of individual ethnic cultures into the single world culture through the development of transport means, economic relations and communications. During these contacts many traditional forms of life and ways of thinking disappear. All these are compounded by the unresolved historical problems, mainly geopolitical, leading to a change in the boundaries of political and economic spaces.

Not using the traditional, living for centuries, cultural symbols it's impossible to get involved into the line of succession of cultures, it is impossible to feel the history as a single process with a certain past and that's why the certain present and, most importantly, the future. It is well known that, for all its diversity in the world musical culture, the further accumulation and development of ethnic instrumental music is in the same context of the evolution of each individual nation. Because of this, Chuvash musical culture is not the sum of the differences, but the system of similarities and differences. This versatile feature allows to compare the Chuvash national tradition with other musical civilizations, makes them equal great, despite the differences in the extent of its influence.

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ART STUDY ANALYSIS AS A MAIN COPONENT OF EXCURSIONS, LINKED TO LEARNING ARTISTIC HERITAGE

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Modern world is filled and overfilled with information. Simple empiric, descriptive-documentary approach toward demonstrating objects becomes insufficient, thus narrowing limits of observation and even making it subjective. Creative, reasonable attitude to the shown material becomes actual in modern excursion practice. Study of art occupies a special place in this case. Excursions, devoted to study of art serve as one of popular and efficient forms of aesthetic enlightenment, formation of artistic taste through a visual contact with originals, and, at the same time, they serve as a one of many forms of studying culture and society, as well as our reality and its reflection in productive areas.

The following basic types of excursions has fixed in theory and practice of the study of art according to their classifications: fine art excursions, theatrical, literary, musical. Excursions of fine arts occupy the leading positions in this list as they are most popular, wide-spread, and demanded. Those are tours, linked to observing masterpieces of painting and sculpture in expositions of artistic museums and picture galleries, as well as walking or coach architecture excursions, that possess a great number of display objects, as architecture monuments are related to a place of their emergence, historic chronicles of a visited territory (a country, a town, or a place).

Architecture constructions of different eras, styles, and functional purpose are most often sights of their own type. Anyway, guides are supposed to explain separate aspects of architecture or town-building at almost each exposition. Excursions that show masterpieces of decorative-applied art have a wide range of objects. Tours around ethnographic open-air museum that have obtained wider spread and acknowledgement refer to this type of excursions. Such tours that refer to processes of social development, reflect in folk art, evolution of applied art of a nation in a certain period.

Art study excursions are diverse: reviews, monographic tours that are devoted to art of one or several artists, thematic excursions, formed according to a genre or other plot principle.

Analysis of artistic artworks occupies a dominating place in such excursions.

While accompanying a tour, a guide faces a problem: he needs to construct is according to thematic, genre, stylistic principle. Depending on the tour construction, it can include different exhibits, but one masterpiece can be included into different thematic excursions. The main parameter of selection is an artistic value of objects that refer to a museum collection, exposition, exhibition.

While demonstrating masterpieces of painting, sculpture, graphics, in terms of limited time, a guide tends to generalize the images as much as possible, and, on the other side, split this homogeneity into components, reveal its composition through a fine arts analysis. Artistic context becomes important, it represents a classic artistic masterpiece, so a system of presenting information is critical. Search for explanative means that enrich a style of a genre, are always linked to the search for figurativeness that strengthens impression and impact. Besides, art study analysis should refer to the best objects, significant masterpieces that define a pride of a museum exposition.

Usually, classic art study analysis includes diachronous and synchronous approaches towards artistic masterpieces that are presented in chronologic sequence in exposition halls of museums and picture galleries. Diachronous analysis that corresponds to a location and place of art objects in historic development of artistic culture, and synchronous analysis are linked as contemporaries of a same epoch. In other words, artistic cultures that exist in a same period, correspond to each other as the old and the new according to their historic genesis and as existing social and national artistic styles, interaction and contacts of which cross each other and are characterized as a crash of different directions, trends, and styles. Since each exposition is not a fixed set of exhibits, "variety of composition" is typical for it, in other words, enrichment, removal of a piece, renewal of the presented exhibits takes place. Therefore, a necessity to give a clear definition of an excursion theme depending on a location of each museum exposition becomes crucial, as it gives visitors an ability to demonstrate some results of the tour in the end of it.

Analysis of three-dimensional spatial objects of art (monumental and decorative sculpture, architecture constructions, ensembles and complexes, palaces and mansions, buildings, administrative and social buildings) has different specific features. Usually, objects are overall constructions that reflect historic events, they illustrate not massifs and plots, but a condition, certain climax moments of a nation's history. First of all, they absorb space in its sculptural of architecture transformation more intensively, thus creating an artistic world that is unleashed into reality. The idea of development obtains a special or even prior significance in excursions that take place on sculptural complexes, architecture ensembles of Russia. There is a certain origin in this open, proud, and delightful feeling for one's own land that sightseers feel.

Tours around ancient cities, nature-reserve towns, usually carry a multi-plan, complex nature of art study. While demonstrating a synthesis of architecture and other plastic arts, a guide underlines the leading part of architecture that organizes space, defines place, scale of painting, sculpture, elements of decorative art. A special attention is paid

to analysing of monuments of cultural heritage that are protected by UNESCO. Art study analysis of spatial-dimensional objects should include a characteristic of archeology, compositional means and methods (proportion, scale, contrast and nuance, rhythm, color, texture, etc.), character of composition (frontal, deep, spatial, etc.).

Another side of fine art analysis is closely related to interpretation of display and description of objects though a coach widows that is perceived in dynamics. In this case movement speed that defines a fast change in scenery requires short comments is considered. In different case, objects can be remote from each other, so a guide is able to present more information, even if the speed is higher. The very vies from the windows obtain a special sense. They allow one to feel an inseverable unity if an architecture object with the whole environment (e.g. building of Hermitage and the great city). They remind us of the fact that the Hermitage itself is a centre of architecture ensemble that is inked to significant parts of Russian history. Even a landscape, observed through bus windows is not simply a neutral background, but is also carries a sensual meaning (e.g. landscape principle within the system of Russian orthodox architecture). But, in both cases, weather it is a walking tour of seeing three-dimensional objects that is planned as a round, or a bus excursion, planned as a sequence of sceneries that differ from each other, the tour forms a whole. Dynamics, certain cinematography of scenes-pictures becomes a rule, with which sculpture and architecture – static types of art «obtain motion». Physical space and time become active descriptive means of it. In order to comprehend and understand a building completely, one should walk around it, a composition of a construction forms of its perception from a number of points of view within a time period (a special composition can stop the time: position of observing a building or an ensemble does

not change). However, physical time is inseparable from artistic expression of its continuity, while the real time is. A definite mood can be created by tours that take place at night or daytime, when artificial light enters descriptive structure of objects (lamps, lamps, fluorescence).

The same object can look impressive in one case and in different case it will not. Therefore, distribution of light, highlight tones can change an impression of compositions, ensembles, buildings completely. Thus, a route of such excursions should be thought through consistently according to spectacular illumination of objects, contrasts between light and shade, shine and reflections that will create impressive mood that can be enriched by sound, or even olfactory feelings that sharpen in nighttime. Light picture of architecture and sculpture is multi-functional. On the one hand, it provides for an object function as a descriptive and expressive mean, and, on the other hand, it deepens the feeling of authenticity, reality of the perceived object.

Finally, another detail of thinking of the observed objects during an excursion programme is a skill to focus on aspects the range of problems that are linked to relations between art objects and an audience, including the guide, their feedback. Excursion of fine arts study is always a summary, a picture of a guide, and setting urgent problems to discuss.

Excursion programmes nowadays tend to break limits of the traditional organization work, overview presentation of the same material. They form into various types of presentations, that are directed to analyse a big part of cultural heritage that carries out a function of human ideas.

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*Materials of Conferences***ULTRASTRUCTURE OF HEPATOCYTES
PIGS IN ONTOGENESIS**

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In the study of mammalian organogenesis is important to determine the period of greatest change and adaptive features of the cells to the factors of the external and internal environment. In this particular importance morphological changes in the liver as an organ that is directly involved in the maintenance of homeostasis. Object of research were omnivores liver that plays an important role in the metabolism in mammals. Ultramicroscopic studies set morphogenesis hepatocytes omnivorous animals at different stages of ontogeny, morphometric characteristics confirmed cytoarchitectonic change the basic cells of the liver parenchyma of pigs of large white breed in the age aspect.

Objective: to study the ultrastructure of liver omnivorous animals at different stages of ontogeny and evaluation of morphometric parameters of components of the liver cells of pigs. For the study were taken from the bodies of healthy animals five age groups: 49-day-old fetus, newborn, 14-day-old piglets, 3 month animals and 1 year old Large White breed pigs (5 animals per group), which were grown in ZAO «Doronichi» Kirov. For ultramicroscopic study took pieces of pig liver and examined by conventional methods at the Institute of Biology of Inland Waters RAS. The use of ultra-microscopic and morphometric methods of research has revealed the basic laws of structural reforms pig liver, which is associated with increased functional load on hepatocytes in the age aspect. For morphometric assessment of the functional state of the parenchyma using image analysis software Image Scope Color M.

The results of the study. Among the various cells of the liver parenchyma, we studied hepatocytes, as more fully characterize the structural and functional properties of the body. To normal cells of the liver cells are attributed to the well-differentiated nucleus, nucleolus decorated, the whole of the cytoplasmic membrane. By degenerating cells include hepatocytes with kernel modifications (kariopiknoz, kariolizis, karyorhexis) and cytoplasm (protein, fatty), and non-nuclear cells. Statistical analysis was performed using Fisher's exact test (F) and the software package Statistica 6.0 for Windows-2007. In the analysis of cytological characteristics of hepatocytes established that the fetal period

pig liver has a beam structure, there are pockets of hematopoietic parenchyma, hepatocytes have the most high nuclear-cytoplasmic ratio ($0,57 \pm 0,09$) for the entire period of observation, indicating that intense functional load body neonatal ontogeny. Newborn animals hepatocyte area was significantly increased compared with the previous period was 2,3 times ($37,1 \pm 0,004$ and $16,1 \pm 0,002$ mm²) as by increasing the area of the cytoplasm and the nucleus of the cell ($28,2 \pm 0,04$ and $8,4 \pm 0,01$ mm², respectively). In the postnatal development of the average area of the nucleus of hepatocytes most significantly increased in the first month of life and stabilize by the end of the first year of life ($4,85 \pm 2,6$ mm²), which indicates that the active restructuring of the genetic apparatus of the cell. Quantitative indicators of the average area of the cytoplasm of hepatocytes, the highest in infants and animals at the age of 1 year. At a later stage of ontogeny is marked cellular polymorphism, the number of mitotically dividing cells, due to increased secretory organ work and compensatory-adaptive reactions of the liver parenchyma in yearling pigs. For animals under the age of one year is typical stabilization cytological indicators glandular parenchyma cells: nuclear-cytoplasmic ratio remains the same ($0,44 \pm 0,06$), the average area of the nucleus of hepatocytes is $4,85 \pm 0,09$ mm² ($p \leq 0,05$), which is 1,2 less than in the fetal period, the relative area of the cytoplasm of hepatocytes was 70,6% of the area of the cell.

At each stage of the omnivores in hepatocytes qualitative changes, characterized by gradual structural complexity of cellular organization. According to our data, the completion of the restructuring and stabilization of cell architectonics is the 3-month-old pigs postnatal period of life. By year of age in the liver of pigs changed location and density of organelles and inclusions, there are connective tissue cells and rearrangement of the nuclear apparatus, which indicates the age of the destructive changes in parenchymal organ.

The data obtained can be used to investigate punctates liver, which is one of the most progressive methods of in vivo diagnosis of disease of the body. Cytopunctio will put a definitive diagnosis or specialist to focus more research will help identify the disease process and predict the further course of the disease.

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THE FILET MICROFLORA FROM THE STURGEON AND ORDINARY FISHES

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In this article the number of frozen forcemeat microorganisms prepared sturgeon flesh of fish and the number of lactic acid bacteria flesh of fish forcemeat in various nutrient mediums by direct seeding and through memory cultures – fish hydrolysis have been investigated. During the modified nutrient medium (e.g. MSB) use by us, the number of mesophilic lactic acid bacteria has been higher by 2–3 orders in magnitude, than in the other standard environments.

The current stage in the lactic acid bacteria flesh of fish study is associated with a number of the theoretical and the practical challenges solution. First of all, this is the new approaches development to the starters' creation for the different branches and the various sectors of the food industry [1, 2, 3].

So, the analysis has been shown, that the allocation sources of the new species and the strains are, mainly, the production strains, the culture collections, the human's and the animals' organism. The insufficient attention is being paid to the habitat niches of the lactic bacteria flesh, both the natural,

as well as the man – made ones. The lactic acid bacteria flesh are in the multi – species and the multi – strained community in them, which is quite increased the promising crops selecting possibility. In Kazakhstan, the total microflora and the lactic acid bacteria flesh of fish filet have not yet been studied, even though it has the great production value against the unwanted microorganisms [3].

Thus, the frozen filet microflora from the ordinary and the sturgeon flesh of fish filet has been studied by us. The contamination of the cooked flesh of fish filet from the sturgeons and the ordinary fishes has already been studied by us.

The frozen flesh fish filet samples from the ordinary and the sturgeon fishes have been served the research objects. The contamination of the flesh fish filet, having prepared from the sturgeon and the ordinary fishes have already been studied.

The flesh fish filet samples, having prepared from the sturgeons flesh of fish (e.g. beluga, hause), and the ordinary (e.g. the bream, the Caspian roach, and etc.) fishes, having produced from the «Rakusha» PC and the «Hope» LLC have been served the research objects. The standard environments have already been used to be isolated the necessary microorganisms.

Thus, the comparative microflora of the flesh of fish filet, having prepared from the sturgeon and the ordinary flesh filet of fishes, have been given in the Table 1.

Table 1

The Number of the Different Microorganisms Groups in the Flesh of Fish Filet,
Having Prepared from the Different Fishes (e.g. $\times 10^2$ KOE/g.)

The storage life of the flesh fish filet	The spore-forming bacteria		The yeast		The yeast-like fungi		The filamentous fungi	
	The filet from the ordinary fishes	The filet from the sturge-on fishes	The filet from the ordinary fishes	The filet from the sturgeon fishes	The filet from the ordinary fishes	The filet from the sturgeon fishes	The filet from the ordinary fishes	The filet from the sturgeon fishes
The pre- pared fish flesh filet in 24 hours	0,3 $\pm$ 0,021	0,2 $\pm$ 0,012	0,1 $\pm$ 0,012	–	0,1 $\pm$ 0,03	-	-	-
in 15 days (360 hours)	0,4 $\pm$ 0,012	0,2 $\pm$ 0,014	0,1 $\pm$ 0,024	0,2 $\pm$ 0,02	0,3 $\pm$ 0,024	0,2 $\pm$ 0,041	-	-
in 30 дней (720 hours)	0,6 $\pm$ 0,032	0,5 $\pm$ 0,03	0,2 $\pm$ 0,021	0,1 $\pm$ 0,012	0,2 $\pm$ 0,032	0,4 $\pm$ 0,032	0,2 $\pm$ 0,02	0,2 $\pm$ 0,02

It has been shown in the Table № 1, that the spore – forming bacteria, the yeast, the yeast – like, and the filamentous fungi are found for the quite different storage periods in the flesh of the fish filet. So, in the flesh of fish filet, there is a small number of the spore – forming bacteria, in the 30 days or 720 hours in 1 gram of the ordinary flesh of the fish filet has been made up the colonies, the forming units have been made up not more, than 60, and in the sturgeon flesh of fish filet – it has been made up only 40. So, the yeast, the yeast – like and the

filamentous fungi have not been found out in the forcemeat from the sturgeon fishes. The filamentous fungi in 30 days or 720 hours in 1 gram have been made up 30–40 colonies, while the next day and in the 15 days or 360 hours they have not been found out at all.

Thus, the flesh of the fish filet, having prepared from the ordinary and the sturgeon fishes, is completely met by the main microbiological requirements.

Further, the culture media selection for the lactic acid bacteria flesh of fish filet separation from the flesh

fish filet has been conducted by us. So, there is no any special culture media for the lactic acid bacteria from the flesh of fish filet, therefore, the lactic acid bacteria flesh of fish filet number study by us, the Kvasnikov',

the Lukovnikov', Bogdanov' culture media, and its modifications (e.g. MSB medium) have been used by the direct seeding and through the batch cultures – the fish hydrolyzate [4]. (see, the Table 2).

Table 2
The Number of the Lactic Acid Bacteria from the Flesh of Fish Filet of the Sturgeon Fishes, Depending from the Medium Composition and the Separation Methods (KOE/g)

The cultivation Temperat Media	The direct seeding			The storage environment, the fish hydrolyzate		
	30°C	37°C	45°C	30°C	37°C	45°C
Kvasnikov	$0,1 \cdot 10^2 \pm 0,02$	$0,5 \cdot 10^2 \pm 0,03$	-	$2 \cdot 10^2 \pm 0,01$	$4 \cdot 10^3 \pm 0,2$	-
Lukovnikov	$0,4 \cdot 10^2 \pm 0,04$	$0,5 \cdot 10^2 \pm 0,02$	$0,3 \cdot 10^2 \pm 0,01$	$8 \cdot 10^3 \pm 0,4$	$6 \cdot 10^2 \pm 0,2$	-
Bogdanov	$0,4 \cdot 10^2 \pm 0,021$	$0,8 \cdot 10^3 \pm 0,031$	-	$7 \cdot 10^4 \pm 0,13$	$8 \cdot 10^4 \pm 0,2$	-
MCB	$0,1 \cdot 10^2 \pm 0,01$	$0,2 \cdot 10^3 \pm 0,02$	-	$9 \cdot 10^6 \pm 0,21$	$8 \cdot 10^4 \pm 0,34$	-

During the modified nutrient medium (e.g. MSB) use by us, having prepared in the fish hydrolyzate, the number of mesophilic lactic acid bacteria has been higher by 2 orders in magnitude, than in the Bogdanov's environment, and it has been higher by 3 orders in magnitude, than in the Lukvnikov's environment. Therefore, for the lactic acid bacteria separation, the nutrient medium, having contained the hydrolyzate, is exerted the favorable condition.

References

1. Bannikova L.A., Koroleva N.S., Semenikhina V.F. The Microbiologic Bases of Milk Production. – M.: Agropromizdat, 1987. – P. 400.

2. Kvasnikov E.I., Nesterenko O.A. The Lactic Acid Bacteria in Nature and Natural Economy // The Applied Microbiology and Biochemistry. – 1982. – Vol. 18, Issue 6. – P. 821–823.

3. Sagyndykova S.Z. The Fish Forcemeat Fish Disease Prevention by the Lactic Acid Bacteria // The Joint Scientific Journal. – M.: RF, 2004. – № 21. – P. 75–78.

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Short Reports

THE SPORTS QUALIFICATION AND SPECIALIZATION IMPACT UPON THE SPORTSMEN'S FUNCTIONAL STATE

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The students' functional state peculiarities have already been revealed, in terms of the heart rate variability (HRV), depending on the sports training level and the type of sports. The necessity to be personalized the physical activities and its loads in the educational process have already been shown, in accordance with the students' overall functional state indicators.

The adaptation reserves are the foundation of the human health, having allowed the human organism to be stayed healthy in the wide range of the living conditions changes. At the same time, the autonomic nervous system is practically played the significant role. The special peculiarities and the features of its functional organization are regarded, as the one of the main characteristics, having formed the human organism response type upon the impacts [1]. So, the sportsmen and the athletes are usually classified to the persons' category, that are the most subjected to the stress factors, so the functioning special peculiarities record of the vegetative and the autonomic nervous system is the significant one for the human organism adaptation possibilities and predicting its responses upon the stresses and the loads evaluation [2].

The Objective. To be investigated the functional state peculiarities, depending on the skill level and the sport specialization.

The Object and Methods. The functional state of the 62 sportsmen and the athletes of the varying skill and the sports specialization – the students of the 1–2 courses by «The Physical Culture» specialty has already been studied. All of them have been undergone the special medical examination, and they have been referred to the «practically healthy» group. So, the heart rate variability (HRV) analysis method has already been used for the functional state level assessment. Thus, the obtained final research results have already been evaluated, according to the functional states classification [3].

The Results and Discussion:

The Functional State Evaluation of the Human Body Regulatory System, Depending on the Sports Qualification

So, all the students have already been divided into the 3 groups, according to their sorts training

level. In the group 1 (e.g. 18 sportsmen and the athletes of the high qualification) – are the Masters of Sports and the International Masters of Sports, including the champions and the winners of the major and the largest International and the Republican and the national competitions (including the World and the Asian ones). The students, having had the Candidate Masters ranks, have already been included in the group 2 (e.g. 14 persons). The third group (e.g. 30 persons) has already been made the students, who do not have any sports categories, or they are with the 1–2 sports categories.

So, the heart rate mathematical analysis [4] has already been shown, that the adaptation possibilities level of the human organism is depended on the sports training level. The highest average rates of the RR-intervals (M), the root-mean-square deviation values of the RR-intervals (RMS), the variation range (VR), the mode (Mo), and the lower rates of the mode amplitude (MoA), the tension index of the regulatory systems (TI), the vegetative balance index (VBI), the adequacy of the regulatory processes index (ARPI), the rhythm vegetative rate index (RVRI) are observed at the sportsmen and the athletes of the group 1. This is demonstrated the parasympathetic nervous system activity dominance and the high adaptation possibilities. At the same time, the rates decline in M, RMS, VR, Mo, and the higher rates of MoA, TI, VBI, ARPI, RVRI have been revealed in inverse pattern at the students of the groups 2 and 3 (Table 1). This is shown the increased activity of the sympathetic nervous system, which is the sign of the regulatory systems high energy of the human organism for the homeostasis maintenance.

The examination has been carried out just after the graduated physical exercise (e.g. the 3 – staged test on the bicycle ergometer) for the adaptation abilities assessment. They have already separated the vagotonic, the normotonic, and the sympathicotonic types of the human organism response upon the load, according to the tension degree of the regulatory mechanisms. So, the changes' nature at the sportsmen and the athletes of the group 1 just after the physical exercise (e.g. the slight decrease of M, RMS, Mo, ARPI and the moderate growth of VR, MoA, TI, VBI, RVRI) is quite corresponded to the normotonic type, and it is indicated the economic activity efficiency of the functional systems after the load, which is confirmed the adaptation high level in the given group. So, the interesting results have already been obtained in the examined groups 2 and 3. The reliable and the significant decrease of the M, RMS, VR, Mo indices and the MoA, TI, VBI, ARPI, RVRI higher rates are quite met to the sympathicotonic type of response, and it

is pointed to the adaptation mechanisms stress. And, if the rest of the significant differences between all the given groups have not been found, then, the reliable and the significant differences are observed after the physical exercise. The more expressed signs of the regulatory mechanisms are observed in the group 3, which is indicated the significant reduction of the human organism's adaptation possibilities. Thus, even the standard physical activities are not always

corresponded to the 2-nd and the 3-rd group students' functional possibilities, which could have the negative impact upon their functional state, due to the functional systems overstress of the human organism. The «Physical Culture» specialty specifics is meant the regular increased physical activity in the learning process, and, therefore, it is necessary to be personalized the physical activity level, according to the general functional condition indicators.

Table 1

The Cardio-Intervalography Indicators at the Students of the Different Sports Qualification under the Rest Condition and after the Graduated Physical Exercise

Indices	Group					
	1		2		3	
	Before	After	Before	After	Before	After
M ± m	0,91 ± 0,02	0,89 ± 0,02	0,87 ± 0,01	0,77 ± 0,01**	0,84 ± 0,02**	0,81 ± 0,02**
RMS	0,08 ± 0,004	0,07 ± 0,004	0,06 ± 0,003**	0,06 ± 0,004*	0,05 ± 0,005*	0,05 ± 0,004**
VR	0,35 ± 0,01	0,39 ± 0,02	0,32 ± 0,01**	0,33 ± 0,02*	0,3 ± 0,02*	0,29 ± 0,01**
Mo	0,92 ± 0,02	0,89 ± 0,02	0,85 ± 0,01*	0,77 ± 0,02**	0,83 ± 0,02**	0,8 ± 0,02**
MoA	30,3 ± 1,5	30,7 ± 1,8	35,4 ± 2,07*	37,7 ± 2,4*	32,5 ± 1,7*	36,2 ± 2,7
TI	56,4 ± 5,9	60,09 ± 6,9	85,7 ± 9,08*	102,7 ± 16,8*	71,5 ± 8,3*	108,7 ± 22,3*
VBI	96 ± 9,4	101,7 ± 10,3	132,2 ± 11,7*	153,3 ± 20,6*	112,2 ± 10,6*	153,9 ± 26,5
ARPI	37,3 ± 2,7	35,9 ± 2,6	47,4 ± 4,9*	51,9 ± 4,02**	40,5 ± 2,9	48,2 ± 4,9*
RVR	3,3 ± 0,2	3,4 ± 0,2	4,5 ± 0,3**	4,5 ± 0,4*	4,1 ± 0,3*	4,9 ± 0,5**

Notes: * – $p < 0,05$; ** – $p < 0,01$ (compared with the group 1 before and after the physical exercise, respectively).

The Functional State Evaluation of the Human Organism's Regulatory Systems, Depending on the Sports Qualification

The training process orientation is the main factor in the function organization of the blood circulation device – the predominant structural support systems principle, having dominated in the adaptation process [5]. So, it can be assumed, that the quite different orientation of the training process will be affected upon the wave structure of the heart rate.

For the impact research by the quite different and the various types of sports studies upon the human organism's functional condition of the elite sportsmen and the highly qualified and the skilled athletes (having had the rank not lower than «The Candidate Master of Sports» – 32 people) have already been divided, depending on their sport specialization: the group 1 – having involved in the different and the various types of sports, having developed their strength – speed qualities (e.g. the jiu – jitsu, the boxing, the judo, Freestyle and the Greko – Roman style wrestling, the rugby); the group 2 – the sportsmen and the athletes, having trained for the endurance powers, the speed (e.g. the soccer, and the field-and-track athletics); the group 3 – the sportsmen and the athletes, having developed their power qualities (e.g. the weightlifting). Thus, the HRV analysis registration has been conducted just before and after usual 60-minute training workout (Table 2).

The highest baseline level of the functional condition had already been found in the group 1, which had the balanced influence with the parasympathetic effects predominance (e.g. LF/HF – 0,91) and also the highest power of the general spectrum HRV (e.g. TR – 8,654), having spoken of the good functional condition. So, just after their workout training, the TR reduction has already been revealed in this group, due to the sympathetic (e.g. LF) and, to a greater extent, the parasympathetic (e.g. HF) components and the constituents, which it is shown the further decline of the human organism's adaptation reserves and their working balances. For all this, the LF/HF relationship is not changed significantly (e.g. the moderate sympathetic effects predominance). This is indicated the lack of the adaptation mechanisms stress and the reactivity conservation of the ANS parasympathetic section. So, the VLF growth contribution is, practically, one of the fatigue and the overstrain signs of the human organism, but with the high physical loads consideration, that the sportsmen and the athletes are experienced, even in the normal workout trainings, the obtained final results are indicated the good adaptation reserves and the working balances of the sportsmen and the athletes human organisms. It has also been revealed the good functional state at the sportsmen and the athletes of the group 2 in the rest condition. So, the general spectrum power

is rather slightly lower, but it is also significantly higher, than the norm rates. At the same time, the sportsmen and the athletes of the group 2 had the more balanced influence of the sympathetic – parasympathetic modulation of the HRV (e.g. LF/HF – 0,96). The functional state is not considerably changed just after the working training carrying out. So, the statistically significant changes have already been revealed only in terms of HF. Then, the LF/HF relationship is not actually changed. For all this, the sufficiently initial power, having remained just after the working training, even with the lower spectral activity of HF consideration, is practically shown the high adaptation reserves and the working balances of the sportsmen' and the athletes' human organism, having developed the powers of the endurance and the speed. The quite different another

picture has already been revealed in the weightlifting sportsmen and the athletes (e.g. the group 3) at the rest condition: there is the lowest power of the general spectrum with the expressed and the significant predominance of the sympathetic effects (e.g. LF/HF – 1,13). So, just after the workout training, there is the current functional state of the depression that is occurred, at the expense of all the spectral components and its constituents decrease, and, in the first place, – the expressed and the significant reduction in the HF reactivity index, and also the significant increase against this background of the sympathoadrenal activity (e.g. LF/HF – 1,42), the VLF – fluctuations prevalence in the spectral picture. All these given changes are revealed the functioning violation of the braking autonomic and the vegetative effects.

Table 2

The Spectral Analysis Indicators of the Heart Rates at the Sportsmen and the Athletes of the Different Sports Specialization before and after the 60 – Minute Workout Training

The Spectral Power Index HRV (ms ² /Hz)	The Sportsmen's Group					
	1		2		3	
	Before	After	Before	After	Before	After
TP	8654 ± 4789	6212 ± 4120	4639 ± 2411	2984 ± 978	2954 ± 1698	1237 ± 652
HF	3224 ± 1432	1678 ± 536	1936 ± 1153	1282 ± 793	903 ± 597	297 ± 168
LF	2708 ± 165	1876 ± 814	1380 ± 833	1304 ± 986	1080 ± 435	448 ± 292
VLF	2616 ± 2378	2341 ± 2065	1229 ± 769	1100 ± 844	958 ± 976	550 ± 293
LF/HF	0,91 ± 0,47	1,09 ± 0,68	0,96 ± 0,42	1,06 ± 0,58	1,13 ± 1,03	1,42 ± 1,16

Conclusions

1. With the sportsmen and the athletes qualification increase, the parameters shifts are observed, having reflected the autonomic regulation changes, in the direction of the tone predominance of the parasympathetic section of the nervous system.

2. The observed in the weightlifting sportsmen and the athletes just after the physical exercise the expressed and the significant tone reduction and the parasympathetic section reactivity, the significant increase against this background of the sympathetic – adrenal activity, they are revealed the violations in the adaptation process, which are shown by the functioning changes, having returned to the mechanisms' norm.

3. The sportsmen's and the athletes' adaptation reserves and the working balances of the cyclic types of sport and the martial arts are significantly

wider, and with their optimal utilization consideration at the physical exercise, they are testified in favor of the most optimal functional state.

References

1. Bayevsky R.M. Berseneva A.P. The Adaptation Possibilities Evaluation of the Human Organism and Risk of the Diseases Development. – M.: The Medicine, 1997. – P. 265.
2. Grayevskaya, N.D. The Sporting Medicine: The Course of Lectures and the Practical Training. The Training Manual / N.D. Grayevskaya, T.E. Dolmatova. – M.: The Soviet Sports, 2004. – P. 304.
3. The Heart Rate Variability Analysis at Different Electrocardiographic Systems Use: The Guidelines / R.M. Bayevsky [and etc.]. – M., 2002. – P. 53.
4. Bayevsky R.M., Kirillov O.E., Kletzkin C.Z. The Mathematical Analysis of the Heart Rate Changes at Stress. – M.: The Science, 1984. – P. 222.
5. Meerson F.Z., Pshennikova M.G. The Adaptation to Stress Situations and Physical Exercises. – M.: The Medicine, 1988. – P. 253.

*Materials of Conferences***EVALUATING THE EFFECTIVENESS
OF R&D EXPENSES**

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The Russian Ministry of economy expects that the country still goes to innovative development. According to the most optimistic, innovative scenario of further development, the Russian economy is expecting a breakthrough in improving the efficiency of human capital and the development of high- and medium-enterprises. Among other achievements, the goal of spending on R & D to 3 % of GDP is a very vague prospect.

In recent years Russia's competitiveness dropped below the level of Brazil, India and China. According to the world economic forum's report on the competitiveness of Russia in 2011, growth of the Russian economy is only 4–5 %, in spite of high oil prices. According to research by the General Electric (GE), innovation acts as the main engine for economic development and competitiveness.

In the annual report of «The 2012 EU Industrial R&D Investment scoreboard view» prepared by the JRC presented the results of the work of 1500 largest companies. The sample consists of 405 companies based in the EU and 1095 companies based in other countries for the fiscal year 2011. The total investment volume for the reporting period amounted to 7,6 % compared to 4 % in 2010. Thus, the upward trend, which takes place in the beginning of 2010 after a sharp fall in 2008–2009, as a result of the global economic and financial crisis, testifies to the fact that companies are gradually returning to the pre-crisis state. The first place in the ranking of sectors, in which the growth of R&D in general for 2011 is observed, belongs to the banking sector and machine building (21,8 and 16,5 %, respectively).

According to research presented in a report prepared by a leading U.S. consulting firm Booz & Company, the world's R&D expenses increased by 9,6 % to \$603 billion from \$550 billion a year earlier, reaching the pre-crisis level. In 2011 the greatest increase in spending on research and development was observed in the electronics industry – 28 % of world spending. Analysis of the geographical distribution of expenditure on innovation (as opposed to R&D spending is the technology and development, adopted by the market) has shown that companies with headquarters in the U.S. and Canada, increased innovation budget by 9,7 %, European – 5,4 %, and Japan – only 2,4 %.

Global spending on science and research and development will increase in 2013 by 3.6 % to reach

\$2.2 trillion, predicts U.S. research organization Battelle Memorial Institute.

The undisputed leader in this field for 40 years in a row are the United States: their spending on science and research and development in the next years will amount to one-third of the world total cost – \$605 billion, or about 2,7 % of U.S. GDP. China is to spend \$183 billion (1,4 % of GDP) on research and development in 2013 as compared to the \$141,4 billion it spent in 2011 and will be in second place world-wide, surpassing Japan. R&D spending in Japan will grow from \$144 billion to \$150 billion (3,3 % of GDP).

Asia's share of global R&D spending continues to grow. This tendency was even five years ago, primarily due to the fact that China has increased spending on science by an average of 10 % per year.

The «World Intellectual Property Indicators for 2012» report, published by the World Intellectual Property Organization, indicates that the highest number of applications received for the grant of patents for the first time was from China, which for the first time last year overtook the U.S. and Japan.

According to the research's results, the number of submitted applications for patents throughout the world in 2011 has grown by 7,8 %, the growth rate of over 7 % for the second consecutive year. Similarly, the number of filed applications for utility models, industrial designs, registration of trademarks has increased by 35 %, 16 % and 13,3 %, respectively. As for the areas in which the applications were filed in 2011, computer technology took the lead – 127 thousand applications. The number of registrations for innovative solutions in the area of renewable sources of energy increased by 8 %.

The number of filed applications for trademarks in 2011 amounted to 4,2 million worldwide, which is an increase of 13,3 %. The greatest increase in the number of applications for trademarks mentioned in the patent office of China – 31,2 %, Brazil – 21,6 % and the United Kingdom of 16,4 %, ITAR-TASS reported. According to the number of patent applications in 2012, the rating of countries in the world indicates that Russia takes the 8th place with the total number of patent applications 41,4 thousand. The three leaders invariably include China (526,4 thousand.), USA (503,6 thousand) and Japan (342,6 thousand).

International business school INSEAD and World Intellectual Property Organization (WIPO) presented an analytical report «The Global Innovation Index 2012». This year, Russia was ranked 51 on the list of 141 countries. From a formal point of view it is six places higher than last year, but due to changes in the rating's methodology the real figure

could be much worse. The top three are still among Switzerland, Sweden and Singapore.

Among the BRIC countries Russia is second only to China (34th place in the overall ranking), and among the countries of the CIS – second only to Moldova (49th place in the overall rankings.) As the report notes, the strengths of Russia related to the quality of human capital (43 seats), business development (43), the development of knowledge (32). Hinder innovation imperfect institutions (93rd), the performance of the internal market (87) and the results of creative activity (84).

Gross domestic expenditure on research and development in the Russian Federation in 2011 amounted to 610 426,7 million rubles in actual prices, or 1,12% of GDP. This level is above the indicators of 2005 and 2006, respectively. However, there is a trend of costs reduction from 2009. At the same time, the total level of funding for R&D in the EU as a whole in 2011 amounted to 2,03 per cent. This significantly exceeds the same indicator for Russia even without taking into account differences in the volume of GDP. Even the financing structure in Russia and European Union countries also varies significantly. The main source for financing research and development for our countries remains the state budget (67,1 per cent in 2011). At the same time, the share of funds attributable to the organization of the business sector in 2011 was only 27,7 per cent, (which is by 2,2 percentage points above the respective period of 2010). Over the last ten years, this proportion varied from 26,6 (2009) to 33,1% (in 2002), having a general tendency to decrease. At the same time the R&D's structure of financing in the European Union countries varies significantly from the Russian one. The share of business sector in funding research and development in the EU as a whole since 2001 to present time ranged from 53,9 to 55,1% and now makes about 54%.

It is also necessary to take into account how R&D allocates funds by sectors. While in most developed countries, a practice of work with public funds mainly in the public sector and in the sector of higher education (in a different relationship between them: in Europe – mainly in the sector of HPE, the U.S. and the Asia-Pacific region – mainly in the public sector), in Russia the «development» of public spending on R&D is carried out mainly in the commercial sector. For instance, if the share of public funds for financing R&D and the business sector is consumed from 5,4 in Japan to 24% in the U.S. in developed countries, it means in Russia this share exceeds 55%.

Thus, there is a situation where on one hand, a very sluggish part of the commercial sector in the financing of research and development, and on the other – the commercial sector consumes the bulk of the budget. While the research funding in the public sector, including the fundamental, is the basis of scientific and technical progress, the higher education sector remains poor.

Russian innovative development, in contrary, is a major cause of the current situation in the research and development field. On one hand, it hasn't gained a significant scientific and technical potential over the years, but on the other – it is a weak link between the research and development results and marketing.

As soon as the entrepreneurs come to realize the need for the implementation of the innovation, the Russian economy will have an opportunity to move to innovative development. But this is possible only in highly competitive markets.

The subject of production innovation is closely related to the topic of demand, therefore there is a need for «forced innovation» in the context to promote their use. In 2011 a number of legislative changes were introduced to facilitate the development of business and investment.

References

1. Statistics Database of Eurostat. – URL: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database.
2. The Global Innovation 1000 / Booz & Company / research in 2012. – URL: http://www.booz.com/global/home/what_we_think/global-innovation-1000.
3. The 2012 EU Industrial R&D Investment Scoreboard. – URL: http://iri.jrc.ec.europa.eu/research/scoreboard_2012.htm.
4. World Intellectual Property Indicators – 2012 Edition. – URL: <http://www.wipo.int/ipstats/en/wipi/index.html>.

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THE HUMAN CAPITAL EFFICIENT USE UNDER THE INNOVATION AND INDUSTRIALLY CONDITIONS DEVELOPMENT OF THE REPUBLIC OF KAZAKHSTAN

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The Relevance of the Study. The efficient economic activity organization at all the levels of the country's national economy, under the intensive globalization processes conditions, is acquired the crucial significance. This is particularly evident, and they are revealed in the periods of setback in the production, the financial instability, and the inflation resurgence in the world economy. The negative consequences upsurge for the economic crisis most countries in 2008, having caused the inflation rise, and the food security thread are the complete confirmation of this.

So, the research topic has already become even more urgent, as a result of the Kazakhstan's Innovation and Industrially Development Strategy for the period of 2003–2015 years, the main objective of whose is to create the alternative, independent of

the primary economic resources; it will be required the human factors role significant increase, and the efficient use of all the available resources.

The Formulation of the Challenge. The political and the economic development objective re-orientation of the world community's countries on the human factor, the human development concept elaboration and its further implementation are being raised the human capital efficient use challenge, under the current economic conditions, the establishing possibility to correlate the human and the country's economy, the simultaneous human and its further economic development, and also their interaction implementation. As a result, there is the challenge to construct the unified system – e.g. the complex mechanism – this interaction.

The Purpose of the Study. The factors search for the human capital efficient use, under the innovation and industrially development of the Kazakhstan Republic conditions, with the further complex economic and socially system construction of their interaction.

The Basic Concepts. The human capital – is the accumulated knowledge aggregate, the education, and the human resources professionalism, which are allowed to be improved the labor productivity, under innovation and industrially development of the country conditions, and the costs and the investments impact in the human capital, to be provided the competitive advantage and to be ensured the competitiveness, and the national economy sustainability for a high quality of the people's life achievement [3].

So, the innovation and industrially development – is the term, having received the widely – used application in the RK economic dictionary, as a result of Presidential Decree of the Republic of Kazakhstan approval, dated from May, 17, 2003, the Republic of Kazakhstan Innovation and Industrially Development Strategy for the period of 2003–2015 years, in order to be ensured the Kazakhstan's sustainable development, on the basis of the economy's diversification and the modernization, the conditions creation for the competitive products' types production, and also for the export growth. The Ministry of Economy and the Budget Planning of the Republic of Kazakhstan are the main developers of this Strategy jointly with the Ministries of Industry and Trade, Education and Science, Transport and Communications, Labor and Social Protection of the People, Energy and Mineral Resources, Finance of the Republic of Kazakhstan, the Agency on the Natural Monopolies Regulation and Protection of Competition, and also with the National Bank.

So, the Innovation and Industrially Development Strategy of the Republic of Kazakhstan is aimed at the state economic policy formation of the Republic of Kazakhstan for the period up to the 2015 year, and it is targeted at the country's sustainable development achievement, through the

economic sectors diversification, and the following shifting from the raw material orientation further development to the processing one [5].

The Main Results of the Study. In the process of this mechanism's development, the priority should be given to the sustainable human development with a high quality of the population's life achievement, as the ultimate goal of the country's economic development, where the human labor resources use in the economy must be submitted to this objective. So, the human resources use concept is the integral part of the further human development Concept. It is quite possible all these relationships can be presented by the following complex system. So, the work is being done simultaneously in three directions – the natural and raw materials resources rational use, the human resources efficient use, the production modernization on the basis of the new and the latest technologies – this is practically provided the Republic's economic growth, where the sustainable human development and a new quality of life are become the ultimate objective of the country's economic development.

The human capital is being formed the significant resource in the Strategy implementation of the socio – economic and the human country' and the company's further development at the macro- (e.g. the country) and the microeconomics (e.g. the firm) level. In this, the common objectives, and the means of achieving, having constituted the efficient use essence of the human resources, at all the levels, are being manifested themselves.

Thus, the efficient use study of the human resources is required the two – leveled approach to the macro – and the micro-economic factors identification and their complex interactions.

So, in the macro-economic factors of the human capital efficient use system, one of the most significant is the block of the following economic factors:

- the economic growth (or the decline) rates, which is characterized the stability or the instability, the production cyclicity; and they have the direct impact on the increase or the decrease in the employment and the workers' layoff, the labor efficiency of the occupied part of the economically active population;

- the investment climate – depending on the investments inflow into the economy, and the enabling environment and the favorable situation creation for the capital investments, in order to be increased and to be modernized the production, on the basis of the new and the latest technologies, and the new jobs and the new working places creation;

- the structural changes in the economy – in the direction of the real sector recovery with the production processing modes, which will significantly be increased the demand for the labor force in the certain occupations and the qualifications;

- the technological and technically capacity – the production technical equipment with the new

and the latest technologies use, the technical and scientifically progress acceleration, that is promoted the workers' labor productivity increasing, and simultaneously it is led to the labor force release;

- the tax system – the legal and regulatory framework of the taxation with the relevant state structures and the agencies, the further improvement of which is increased the companies' activity and the individual business entities' efficiency, especially in the sphere of the small and the medium businesses;

- the civilian capabilities – the further formation of which is meant the individual becoming and the development, as the citizen, his choice to the civil position, in relation to the labor, the labor motivation, the profession choice, and the career. Due to the radical changes of the human life conditions, the behavioral norms, and the values, the identity formation, as the citizen, it is became very significant for the country's social and economic development;

- the demographic potential – which is characterized by the size and the structure of the population by sex, and age, it, moreover, is formed the formation basis of the human resources, by estimate at the certain moment, and in the process of their reproduction. For all this, the special significance is acquired the health preservation, the persons ability of their working age, due to the high stability among this contingent;

- the occupational capacity, having considered, as the volume and the quality of the economically active of the population and the labor force, it is formed on the basis of the qualified – professionally structure, having based on the efficient system creation of the occupational orientation, the guidance, and the professional career of the support and the escort services;

- the labor mobility, – such as the high labor force mobility, thanks to which the territorial, sectoral, and occupational reallocation of the economically active population and the work force of the country is taken its place;

- the entrepreneurial skills, – as the significant reserve for the efficient use increasing of the human resources, under the current market economy development conditions, the entrepreneurial person, his personal initiative in his own business starting, the willingness to take the risks;

- the situation on the labor market – it has the direct and the significant influence on the efficient use of the human resources. The implementation of the human potential possibilities (e.g. the education, the occupation, the skills, the entrepreneurial skills, the entrepreneurship) is occurred through his employment. The reduction of the population employment, the situation worsening in the labor market are led to the huge economic losses, because they are eliminated the considerable part of

the professionally active population from the creation process of the country's gross domestic product (GDP) [1].

Along with the above – mentioned macro-economic factors, the micro-economic factors system of the efficient use of the human capital is functioned, among which it should be included:

- the enterprise company Strategy;
- the production modernization with the new technologies use;

- the efficient system of the labor remuneration;

- the safe and the healthy working conditions providing;

- the labor organization improving;
- the labor mobility at the working places;
- the workers' low turnover;
- the labor regime and the labor discipline observance;

- the qualification structure of all the categories' personnel;

- the occupational advancement and the career development providing;

- the high level of the workers security by the socio – economic benefits;

- the staff's socio-psychological climate.

Thus, the macro-economic and the micro – economic factors data of the efficient use of the human capital are the components of the single inter – related socio-economic system [4].

The Conclusion. Thus, the efficient use of the human capital essence is to be identified the macro-economic and the micro – economic factors interaction of its formation, followed by the complex socio-economic system construction, which is aimed at the further sustainable economic growth and the new quality of life, under the innovation and industrially development of the Republic of Kazakhstan conditions.

References

1. Borodina E. The Human Capital, as the Main Source of Economic Growth // *Economy of the Ukraine*. – 2003. – № 7. – P. 51.
2. Dobrynin A.E., Dyatlov S.A., Tzyrenova E.D. The Human Capital in Transitive Economy: Formation, Evaluation, Use Efficiency. – *The Collection of Publications: The Science*. – 2001. – P. 312.
3. Meldakhanova M.K. The Human Capital & Sustainable Development of Kazakhstan: Theory, Priorities, and Realization Mechanism. – *Almaty*, 2011. – P. 341.
4. The Formation and Development of Competitive Human Capital in Kazakhstan // *The Materials of the International Scientific & Practical Conference*. – *Almaty*, June 23, 2010. – P. 408.
5. <http://ru.government.kz>.

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*Materials of Conferences***INNOVATIVE APPROACH TO TEACHING
AND RESEARCH OF SOME TRADITIONAL
CRAFT BRANCHES OF GANJA OF THE
END OF XIX CENTURY**

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Article deals with the historic-ethnographical importance of development of the main traditional branches of decorative-applied arts of Ganja. Basic skill characteristics of these handicraft branches of the end of XIX century for the first time were systematic investigated. Also, have been researched the typical features and development perspectives of teaching of local traditional decorative-applied arts at the higher educational establishments in Ganja.

Ganja is of the ancient cities of the world and this city has more than 3000 years old. One of the areas of initially appeared human civilization was an integral part of Azerbaijan, the historical land of the city Ganja. Scientific and archaeological researches have proved that Ganja was cradle of science and culture not only of Azerbaijan, but also of the whole East.

The majority of historical monuments, that are demonstrate the 3000 thousand year history of Ganja, which is the national wealth of our people, today gain unique place in the expositions of world's museums. In state and private museums of Metropolis, Munich, Berlin, Hamburg, Louvre, Paris, Moscow, St. Petersburg and other cities rare and valuable exhibits, that concern to the history of ancient Ganja are preserved.

Late in XIX – early in XX centuries in Ganja were developed such traditional handicraft branches as carpet-making, masonry, ceramics trade, metal-making trades. During this historical period these kinds of decorative-applied art had some typical features.

Many different wares of these handicraft branches are guarded in museums. In Ganja in the territory of Ganja State Historical-Local Lore Museum named after Nizami Ganjavi some unique patterns of different kinds of local traditional decorative – applied art are preserved, too.

Investigation and also teaching of these handicraft branches of Ganja of the end of XIX century is very necessary. On the basis of scientific materials it is very important to research different wares of decorative-applied arts of ancient Ganja. Teaching of these handicraft branches at schools is so necessary too, because:

1. The formation of pottery on the territory of ancient Ganja is concern to the stages of ancient

history. Basis on research works carried out by the various persons in XIX century and experts-archeologists at the beginning of XX century in old ruins of the city and surrounding areas there were found different samples of pottery [1].

First of all, there have been discovered, that initial ceramic production in Ganja and its surrounding regions are belong to the VIII–VII millennium BC. From the history point of view, these ancient clay vessels, belonging to the Neolithic stage, are differing from the pottery samples of the neighboring ethnic in a number characteristic. These differences are seen in preparing technology, also in the area of external surface decoration. In Ganja during many centuries ceramic trade was one the main handicraft branches. Different wares of this kind of decorative-applied art were considered as the qualitative and graceful patterns in whole of the country.

Ceramic patterns of Ganja of the second half of XIX century have many characteristic handicraft features. During this historical period in Ganja have been prepared different ceramic wares with various constructive – plastic forms. Seheng, shegreng, kupe, jurdeck, kuze were the main water crockeries of Ganja in the XIX–XX centuries. Basic kitchen ceramic utensils were considered cholmek, qazan, qazancha, kuvey, dopu, helimdon, ashshyuzen and others [2].

The most part of earthenwares of Ganja during this period had different local traditional ornaments. Many of these wares are decorated with geometric, botanical designs and figures of domestic, also wild animals, but always graceful and effective. The major parts of these traditional ceramic wares of Ganja have stamps (handicraft stamps). Late in XIX – early in XX centuries in this ancient city was a great district – «mehelle», which called «Duluschular» («Potters»). In the territory of this district during many centuries lived and worked craftsmen of this trade [3].

We propose a motion for investigation, also teaching of ceramic trade of Ganja just in this city. At first, in the territory of Javad khan street of Ganja this year (in 2012) was built the scientific – applied centre of national traditional ceramic trade. Here it is possible to product different pottery wares. Also, in Ganja branch (former Ganja Regional Scientific Centre) of Azerbaijan National Academy of Sciences were compiled and published some scientific-methodical monographs, articles on the theme of investigation of ceramics trade of Ganja by scientists [4].

These scientific-educational supplies is very necessary on teaching of the history and characteristic trade of this handicraft branch at Ganja State

University, Ganja humanitarian college, also at Azerbaijan Technology University.

2. The craftsmanship of carpet-making is one of the important cultural achievements of the Eastern people in Azerbaijan production of carpets appeared in the I millennium BC. But carpet-making in the first period of Middle Ages has turned to the independent sphere of craft. In Ganja, that has minimum 3000 years history, production of carpets differed with quickly development. In this ancient city, that is native land of great Azerbaijani poet and thinker Sheikh Nizami Ganjavi, were weaved very uncial, inimitable kinds of carpet. In Ganja, that has rich traditions, were prepared carpets with various characteristics. For this reason one of Azerbaijani carpet groups are Ganja carpets or (Ganja-Kazakh carpets). Pay attention that in Ganja namely local kinds of carpets-palaz (carpets without of pile) are weaved. These carpets that are producing by local inhabitants are differing with specific handicraft features. During XIX century in Ganja were produced different kinds of local national carpets. These wares are important historical-ethnographical sources. It is very necessary to protect all patterns of traditional carpets of Ganja of this historical period [5].

Also, teaching of these decorative-applied art wares on the basis of scientific materials is urgent problem. In Ganja during XIX-XX centuries were prepared such carpet – making trade wares as khalcha, palaz, kylim, khaly, kebe, chul, verny and etc. [6].

During many centuries carpets of Ganja differed from other carpet wares for their typical handicraft features. This carpet kind had very various decorative-ornamental characteristics. Buta, also different geometric and botanical ornaments are considered as the basic decorative-handicraft accounts of local traditional carpet wares of Ganja [7].

Today the youth of the Azerbaijan Republic would learn this ancient traditional kind of handicraft. In our country we have specialists of this branch and at some colleges; universities are teaching different kinds of traditional decorative – applied arts such as carpet – making trade. But also we have to pay attention to this fact, that in our villages of Ganjabasar (Western part of the Azerbaijan Republic) region lived many women (also men), who considered the elderly specialists of this ancient trade.

3. Ganja and its surrounded territory are also rich with different stones. Presentation of white and in mountain and Aran Karabakh and also lime, travertip and marble building stones in and around Ganja, pure white, a lot of colored agates, chalse-dons, viel, ametist, obsidian, agates, crystal and other kind of rare colored stones in the river basins of Shahdag, Kecheldag, and other territories

created favorable ground for developing in this ancient country from ancient times stone cutting, stone grind, stone polishing and for building great modern, columned, arched, circled and four-cornered buildings here. In the second half of XIX century in Ganja one of the main traditional handicraft branches was a masonry trade. During this historical period masonry trade differed with its speedy development [4–6].

For this period masonry trade was considered the basic indicator of development of local traditional architecture. Main and more popular wares of masonry trade of Ganja in the XIX century were architectural and construction buildings [8], epigraphically monuments, epitaphs (sepulchral stones with calligraphy) [9].

Basic models of the national masonry trade of Ganja for this period are considered the dwelling houses and public buildings. Common quantity of these historical buildings is more than 200. But the main epigraphically wares of Ganja of this period are stony models («shebeke») and stells of Ganja Imamzadeh tomb, also Shah Abbas mosque.

In the territory of Ganja there are many epitaphs wares. During XIX-XX centuries here lived some popular lapidaries. In the territory of this ancient city were preserved a lot of models of this handicraft branch. In «Sebzikar» grave-yard, also in the territory of cemetery of «Imamzadeh» complex there are more than 150 epitaphs of this historical period. These epitaphs are considered the main sepulchral stones with calligraphy of the end of XIX century of Ganja [10].

At Azerbaijan State Agrarian University, Azerbaijan Technology University and Ganja State University in Ganja have been prepared some methodical-scientific supplies on the theme of investigation and teaching of this ancient traditional handicraft branch [11].

We must say, that is very necessary to teach the main handicraft features of traditional decorative-applied arts of Ganja of the XIX-XX centuries. Also in Ganja branch of Azerbaijan National Academy of Sciences during 2011–2012 years were systematic investigated the basic national characteristics of these trades and published some scientific works. In the future we have to continue our researches in the field of learning, investigation and teaching of these main traditional handicraft branches of Ganja.

References

1. Azərbaycan etnoqrafiyası: 3 cildə, I c., Bakı: Şərq-Qərb, 2007, 544 p.
2. Guliyeva N.M., Hasanov E.L. About ethnographic-archaeological research of some handicraft branches of Ganja during XIX-XX centuries / Progressive scientific explorations – 2012: Proceedings of the 8th International scientific-practical conference. –Prague: Publishing House – Education and Science s.r.o., Prague, (Czech Republic), 2012, P. 56–58.

3. Hasanov E.L. Innovational ethnographic facts on investigation and teaching of some basic decorative – applied arts of Ganja of the XIX–XX centuries / *Applied and Fundamental Studies: Proceedings of the 1st International Academic Conference*. Saint Louis: Publishing House – Science and Innovation Center, Saint Louis, Missouri (the United States of America), 2012. – P. 400–403.

4. Həsənov E.L. Die Gändschänischen teppiche von XIX – XX Jahrhundert als geschichtliche – ethnographische quelle // *European Science and Technology (Die Europäische Wissenschaft und die Technologien): 2nd International scientific conference*. – Bildungszentrum Rdk e. V. Wiesbaden, (Germany) 2012. – P. 26–27.

5. Hasanov E.L. Typical ethnographic features of traditional craft of Ganja in the end of XIX – beginning of XX centuries / *Scientific potential of the World – 2012: Proceedings of the 8th International scientific – practical conference*. Sofia: Publishing House – Bial GRAD. – BG, Sofia, (Bulgaria), 2012. – P. 23–24.

6. Həsənov E.L. Gəncə İmamzadə türbəsi (tarixi – etnoqrafik tədqiqat). – Bakı: Elm və təhsil, 2012, 268 p.

7. Quliyeva N.M., Həsənov E.L. Gəncənin qədim və antik dövr saxsı məmulatlarının öyrənilməsində biokimyəvi

innovasiya texnologiyalarının tətbiqinə dair / *Biokimyəvi nəzəriyyələrin aktual problemləri mövzusunda II Beynəlxalq konfransın materialları*. – Gəncə: GDU, 2011. – I hissə. – P. 210–213.

8. Nemət M.S. Azərbaycanda pirlər. – Bakı: Azərənəşr, 1992. – 104 p.

9. The dawn of Art. – Leningrad: Aurora Art Publishers, 1974. – 196 p.

10. Caucasian calendar for 1854. – Tbilisi, 1853. – P. 338–341.

11. Guliyev N.M., Hasanov E.L. On the development of art pottery in ancient Ganja // *Questions of the social sciences: sociology, political science, philosophy, history: proceedings of the international correspondence scientific conference*. – Novosibirsk: Apriori, 2011. – P. 132–135.

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Materials of Conferences

**APPLICATION OF LOW-FREQUENCY
MAGNETIC THERAPY
AND IODIDE-BROMINE BATHS
IN THE COMPLEX TREATMENT
OF PATIENTS WITH DISCIRCULATORY
ENCEPHALOPATHY**

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The study was assessment of the efficiency of application of low-frequency magnetic therapy and iodide-bromine baths in the complex treatment of patients with discirculatory encephalopathy.

Materials and methods. Examined 74 patients with discirculatory encephalopathy of the I-II stage on the background of atherosclerosis and arterial hypertension in age from 46 to 69 years. The main complaints of the patients were headache, dizziness, loss of memory, increased fatigue, emotional lability, sleep disorder. All patients underwent clinical neurological examination, lipid profile of blood plasma and cerebral hemodynamics.

Patients were divided into groups on the conducted therapy. In the main group consisted of 38 patients with discirculatory encephalopathy of the I-II stage, received at the background of the basic treatment course magnetic therapy and iodide-bromine baths, the comparison group made up of 36 patients, who had received only the basic therapy.

Magnetic therapy was variables the magnetic field from the «Polus-2» for the bytemporal method with inductors, frequency of 50 Hz, in continuous mode, the intensity of the magnetic induction 35 mTl, with time of 15–20 minutes. The course of treatment consisted of 10–15 procedures carried out daily.

Iodide-bromine baths were conducted with the iodine concentration of 10 mg/l, bromine 25 mg/l, water temperature of 35–37 °C, lasting 10–15 minutes. The course of treatment consisted of 15–18 procedures carried out through the day.

The results of the study. After the course of treatment at 87,3 % of the patients of the basic group was observed to the improvement of clinical con-

dition: decreased headaches, dizziness, noted the improvement of health and increase of efficiency, normalization of sleep. According to the results of the Electroencephalography revealed the improvement of the regularity of the dominant rhythm by 11,6%, normalization of background activity by 9,5%, decrease of severity of quick activity and interhemispheric asymmetry of 10,2%, the improvement of the reactivity of bark on the functional tests at 8,9% ($p < 0,05$). Analysis of Rheoencephalography showed an increase in pulse blood supply of a brain by 25,6%, normalization of tone of cerebral vessels, improvement of venous outflow of blood by 18,7%, decrease in the amplitude of the coefficient of asymmetry by 10,3% ($p < 0,05$). Dynamics of indicators of the blood lipid spectrum showed the decrease of total cholesterol by 12,9%, cholesterol low-density lipoproteins – by 9,9%, threeglitserids – by 9,8%, cholesterol high-density lipoproteins – by 3,9% ($p < 0,05$). The results of the study in patients of comparison group have not undergone any significant change.

Conclusions. Application of low-frequency magnetic therapy and iodide- bromine baths in the complex treatment of patients with discirculatory encephalopathy of the I-II stage contributes to the improvement of clinical symptoms, the positive dynamics of the brain blood circulation, normalization of the blood lipid spectrum. Complex application of magnetic therapy and iodide-bromine baths increases efficiency and reduces the period of treatment of patients with chronic ischemia of brain.

References

1. Bogolyubov V.M. Physiotherapy and balneology. – M., 2010. – Vol. 1. – P. 276–291.
2. Bogolyubov V.M. Physiotherapy and balneology. – M., 2010. – Vol.3. – P. 13–32.
3. Bogolyubov V.M. Medical rehabilitation. – M., 2010. – Vol. 2. – P. 3–38.
4. Ponomarenko G.N. Private physiotherapy. – M., 2005. – P. 272–277.
5. Ahno N.N. Diseases of the nervous system. – M. – 2007. – Vol.1. – P. 231–744.

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*Materials of Conferences***GENDER DIFFERENCES EFFECT
ON DEVELOPMENT OF HUMAN CAPITAL
IN THE REPUBLIC OF KAZAKHSTAN**

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The main problem of gender researches consists in determining possibilities for overcoming gender inequality, gender-based discrimination at all levels and in all spheres of social life – labour, economy, politics and family.

In UN Millennium Declaration adopted in 2000 and signed by the most countries of the world, promotion of gender equality and empowerment of women were specified as the main objectives of humanity development in the third millennium. Thus, out of eight Millennium Development Goals (MDG) three related to women problems and gender relations. Namely:

- Goal No. 3 – promotion of gender equality and empowerment of women;
- Goal No. 4 – child mortality rate reduction;
- Goal 5 – improvement of mothers' health.

Republic of Kazakhstan Gender Equality Strategy for 2006–2016 was approved in 2005. This strategy aims at creation of conditions for equal rights and opportunities of men and women, equal participation in all spheres of social life and activity in accordance with the UN Millennium Development Goals.

This strategic document ushers in a new stage in social policy of the Kazakhstan. Thus, in particular, the Strategy emphasizes insufficient public awareness of the need for the gender equality, presence of steady traditional stereotypes on the role of women in society.

Gender equality strategy provides for indicators that will be used for the control of its implementation including the following:

- contribution by women and men to GDP;
- number of people living on the breadline;
- rate of HIV propagation among pregnant women;
- maternal mortality structure.

In the Republic of Kazakhstan Gender Equality Strategy for 2006–2016, gender is considered as combination of social and cultural norms and roles of men and women that determine gender behaviour and social relations between genders.

At the present moment, gender problem was determined as the priority one by many international organizations that admit that gender indicators should be introduced into all social and economic programs contributing to democratization of soci-

ety, improvement of the quality of life, eradication of poverty and sustainable development of nation.

Inclusion of Kazakhstan into category of countries with high human potential (HRI 0.804) – 82nd place of 182 countries, in the UN Report on Human Development testifies of the possibility of achievement of a new economic upswing since in 2007 was 73rd (HRI 0.794) among 177 countries in the rating of the average level of human potential development. This is indicative of Kazakhstan rating improvement, in accordance with the World Human Development Report by UNDP, and on the sources of new economic upswing, which have not been used to the fullest extent yet.

Evaluation of indexes of certain components of human development and HDI for population on the whole and broken down by genders shows improvement of all indexes of human development both for women and men. However, gender differences are still significant. Thus, at the increase in GDP per capita of 3,889 USD over the period of 2003–2009, GDP volume per a women increased only by 4,092 USD, while that per a man increased by 5,578 USD (Table).

Considering industries and regions, no industry or region of the Republic of Kazakhstan can be noted for women's average salary equal to let along higher than that of men.

At that, it is possible to mention here that as compared with men's salary, average salary of women is within the wide range from 57,4% in hospitality and restaurant business to 89,9% in the sphere of education.

The higher is the above ratio, the less is the difference in average salary of men and women.

For the purpose of ensuring equal rights and possibilities, the government set the following tasks:

- cause that as many women as possible would work in regulatory bodies at decision making level;
- improve legislation and establish institutions for gender equality ensuring; develop legislative means for women's rights protection;
- create conditions for active participation by women in economic life;
- provide economic preferences for women; take measures necessary for improvement of mother's and child health and ensure substantial improvement of legal and social guarantees for women;
- revive moral values and cultivate positive image of family and marriage.

The following important laws were passed for this purpose in 2009: «On Governmental Guarantees of Equal Rights and Opportunities for Men and Women», «On Prevention of Domestic Violence». For the purpose of furtherance of democratization processes, effective promotion and every possible

protection of women's rights and extension of international cooperation, a new structure – Coalition of Women of Kazakhstan, has been established by the National Commission on Women's Affairs and Family and Demography Policy under the president

of the Republic of Kazakhstan. This coalition will make the role of women's non-governmental organizations more significant through focusing of efforts on implementation of gender policy and will allow for an effective online decision making.

Human Development Components Dynamics, by genders

	2003	2004	2005	2006	2007	2008	2009
1	2	3	4	5	6	7	8
– Life expectancy at birth	65,8	66,18	65,91	66,19	66,34	67,11	68,60
including:							
women	71,5	72,0	71,77	72,03	72,32	72,43	73,55
men	60,5	60,62	60,30	60,55	60,69	61,91	63,62
Gender difference, years	11,0	11,4	11,5	11,5	11,88	10,52	9,93
– women employment rate, %	49,1	49,0	48,9	49,3	49,6	47,9	48,0
– women to men salary ratio, %	60,8	61,7	61,1	62,3	65,8	63,8	65,1
– GDP per capita, USD	6532	7273	8699	9800	10839	11276	11337
including:							
women	4652	5220	6193	7125	8210	8557	8744
men	8556	9484	11398	12683	13673	14208	14134
Gender difference, USD	3903	4264	5205	5559	5464	5651	5390
– Labor force participation rate, %	70,0	69,9	69,4	69,7	70,4	71,1	70,7
women	65,0	64,8	64,3	65,0	65,7	66,7	66,1
men	75,6	75,6	75,2	74,9	75,6	76,1	75,9
– Unemployment rate, %	8,8	8,4	8,1	7,8	7,3	6,6	6,6
women	10,4	9,8	9,6	9,2	8,7	7,9	7,5
men	7,2	7,0	6,7	6,4	5,9	5,3	5,6

Source of information: Statistics digest «Women and Men of Kazakhstan» Astana, 2010, p. 5.

This is the new stage of qualitative development of this movement in Kazakhstan. It is recognized that Kazakhstan has a conceptual framework of legislative documents providing for strategic approach to gender equality development. National Commission for Women's Affairs and Family-and-Demography Policy established for support of family institution and improvement of social status of women and children is the efficient body in the given process.

Degree of participation by women in political and economic life of Kazakhstan is an important indicator of gender equality. Thus, share of women in the lower house (Mazhilis) of Parliament doubled comparing to the last year and now makes 11,8% and that in administrations (Maslikhats) of all levels – 17%. Over 54 thousand women are now involved in governmental service, which is almost 58% of the total number of public service employees. Nevertheless, participation of women in decision making process has not reached the minimum threshold value of 30% yet as the Beijing package of measures for improvement of women's social status requires. National government intends to achieve the level of 30% participation by women at the decision-making level approximately by 2016.

Gender inequality has historically been based on the special part of getter, supporter and head of

family assigned to men and the part of a housewife caring for children assigned to women. At that, efforts in social sphere were rewarded by money, prestige and power while household duties were underestimated as a rule. Nevertheless, that situation has been first slowly and then quickly changed. Thus, more and more women with children have permanent jobs. Still, career progress of women differs greatly from that of men. Child-bearing age coincides with the time when a woman can effectively use her professional and qualification potential for career progress. Moreover, new mother does not have opportunity for continuous professional development and, consequently, for professional advancement and men managers very often believe that women cannot work with maximum performance after maternity leave and stop to promote them and contribute to their professional advancement.

Taking into account real problems of men and women, government should pursue a well-thought gender policy aimed at ensuring stability of country, improvement of life quality and social health of population, improvement of reproductive health of both women and men, restoration of a traditional role of father and mother in family and promotion of a new form of gender relations in family – com-

plete equality and respectful attitude of man and woman to each other and to each child.

Average life expectancy index representing a composite index characterizing possibility of a long and healthy life of country's population is an important component of human capital development.

Life expectancy of population of the Republic of Kazakhstan is shorter comparing to that of developed countries. In 34 countries of the world population's life expectancy is within the range of 75–80 years. With the same, there is substantial differentiation of life expectancy by genders resulting in the problem of men's over-mortality rate.

There are 1,078 women per 1,000 men in Kazakhstan. Tendency of number of women excess over the number of men begins upon reaching of 30 years. Twice as many women as men live to be 75–79 years old.

At the beginning of 2010, mean age of women was 33,3 years and that of men – 30,0. For urban population shift to older mean age of 34,7 and 30,6 years for women and men correspondingly is typical while rural area women and men mean age is 31,7 and 29,4 correspondingly. Expected lifespan of children born in 2009 is 68,60 years including 73,55 for women and 63,62 for men.

In Kazakhstan, per 1,000 women dies 1,272 men (relative mortality rate) and almost 40% of deceased men were in active working age. Rate of mortality of men of an active working age (16–63 years) is more than thrice as high as that of women of an active working age (16–58 years) and mortality of men caused by intoxication and traumas is more than 4,5 times as high as that of women.

Unfortunately, high mortality rate among men is considered to be a natural process associated with their lifestyle – military service, work in mines and work as pilots and operators of all types of transportation means. Alcohol and drugs abuse also contributes to excessively high mortality rate. According to statistics, number of born boys always exceeds the number of born girls. But approximately by the age of 30, number of men and women lines up and by the age of 40 there are only 800 men per a 1,000 of women and by the age of 50–750 men per a 1,000 of women.

Social status of women and children is an unquestionable criterion of prosperity and well-being of a nation. Independent organization Save the Children has published an interesting data based on the results of study of social status of women and children and correspondingly mothers in 173 countries of the world. According to this information, Norway ranks first in terms of conditions created for mothers. Australia ranks second and is followed by Iceland and Sweden that jointly ranked third in this rating. From among CIS countries, Belorussia has the lead being 33rd in the rating of developed countries. Kazakhstan ranks 51st among all countries and 8th in the list of «less developed countries».

Results of conducted observations show that child care leave period was cut almost half while possibility of making changes in schedule or mode of work, workday hours, workplace and also of distribution of work duties allowed for improvement of labour productivity and elimination of frequent disease incidence. Part-time employment and out-side office may be profitable and effective both for employers and employees.

For another thing, working women noted effect of employment flexibility and development of child care services market on their reproductive behaviour.

Various nonstandard work statuses such as extension of child-care leave period, flexible employment types, for example, part-time employment, remote work, should be introduced into the national labour market in order to help women successfully fulfill their potential in the labour market and satisfy the desire to have children.

Therefore, general policy pursued by government shall be geared to achievement of Millennium Development Goals including gender equality. Gradual shift of public social conscience toward the change of gender paradigm from domination of one gender over another to partnership and equal cooperation of both genders is going on in the country.

In order to achieve the above mentioned goals, it is necessary to promote equal-terms participation by women in all processes of social development having opportunity for fulfillment of their personal potential. Women should participate in social sphere activities on equal terms with men and the same should be true for men as regards private spheres of family, household work and child rearing.

Support and development of the initiative by the National Commission for Women's Affairs and Family and Demographic Policy under the president of the Republic of Kazakhstan for study of issue of recognition of child-bearing, giving birth and breast feeding as a type of labour and household work as one of the types of socially useful work and consequent accounting for this factor upon award of pension and welfare is an important line in development of demographic policy.

This new approach will undoubtedly have a certain managerial effect. Separation of the given item in the budget, which can be identified as Children's Fund, will allow for evaluation of expenses and results of all components of its flows, dynamics and results of target actions by government.

Along with that, it appears that all social payments by the government shall be calculated based on the one basic element – minimum subsistence level and not on the monthly calculation index.

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