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INTERNATIONAL BORDER COOPERATION OF RUSSIA AND CHINA: CHANGE OF PRIORITIES OR CHANGE OF THE PARADIGM?

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The article delves the state, problems and main directions of development of border cooperation of Russian Far East territories under the conditions of advanced asymmetrical centre-peripheral regional management. The attention is put to the analysis of Russian-Chinese border cooperation with the major features highlighted. The article offers priority directions of further sustainable development of Russian Far East economics on the base of realization its border territories transit function. The article also elaborates possibilities of national and international transport corridors, forming of «point» innovative regional systems and using of recreational and tourist resources of the territory.

Keywords: Russia, China, change of priorities, change of the paradigm

1. One of the most urgent challenges for the Russian Far East development – a challenge, that substantially differentiate this region from the other ones, is its *advancement of central-peripheral management of space*, that was inherited from the previous process of development.

There can be distinguished three reasons for such regional differentiation, which are connected at first, with introduction of market competition mechanism that has split the regions according to their advantages and shortcomings; secondly, with the weakening of government's controlling role that also has been shown in decrease of public investments into the regional development; and thirdly, with the actual consolidation of region's inequality with the centre.

As a consequent of this social-economic and legal inequality, there has increased the weakening of inter-regional economic interaction and mounting economic and social conflicts. From the 90-ies on, the relations of Far Eastern regions with far abroad have been replaced by the relations with the near abroad, and inter-district cooperation's become locked into itself. Under some estimation, the internal inter-regional exchange of GNP's fallen from 22% in 1990 to 16% in 1994, and fell to 12-14% for the 1995-2008 period [2].

This situation suggests several conclusions about the competitive ability of the region. First, the production of Russian regions on home market is highly uncompetitive suggesting its high cost. Second, the main consumer (the local consumer) of these products has no choice. And third, the rise of consumption on external market, following the rise of trade surplus, is not and evidence to the growing competitive ability. Moreover, the specialists estimate that the share of foreign direct investment (FDI) of the total amount of investment into the Russian Far East at the peak of its inflow didn't exceed 7-8% and was lower than average sum of investment to Russia.

Thus, the Russian Far East isn't only weak in the realization of its comparative advantages

in development of foreign-economic activity, but also lags behind other regions. That is why the federal and regional governments face the challenge of Far East integration into the Northeast Asia on the hand, and on another – its re-integration with other regions of Russia. To solve the second part of the challenge, the frontier cooperation may prove to be a decision. It must be considered as a strategic competitive resource of the territory, which, developed under the effective management, can become a foundation of internal and external integration under the conditions of inclusion of Russian economic space into the world processes.

2. As European experience shows there can be *three possible levels of integration*: *low* (two frontier regions behave as independent units); *medium* (various forms of cooperation between social institutions, private enterprises, and private individuals are partly integrated or well-coordinated); and the *high* (two frontier elements are effectively functioning as a socio-economic integrated unit) [5]. Here the frontier cooperation promotes both vertical (traditional) and horizontal regionalization. The vertical regionalization is a form of decentralization inside the country that is delegates powers from federal to regional level. The horizontal regionalization assumes the development of inter-regional contacts and a kind of partnership between municipal councils and institutions of frontier territories on a local level. The advancement of cooperation between frontier territories that stimulates the emergence of business, social and physical (water- or energy supply, transport, communication, etc.) connections facilitates better regional integration of a higher amount of regional and non-regional economic units and favors gradual shift from the inter-frontier cooperation into the trans-frontier one.

Frontier cooperation plays an important role in development of economic space. It helps to overcome a peripheral system, the marginalization of border regions. By the frontier cooperation countries can transmit

their political and economic influence to the neighbor countries. Frontier regions are natural constructions in building the «big economic spaces» that include national economic spaces of two and more countries. This point is very important for Russian Far East federal district, where realization of frontier cooperation that comes in shape of internal and external integration faces two difficulties: from the one side – isolation of Far Eastern territories from the national market, from the other – deformation of regional economy structure.

The appeal of frontier regions for the foreign investors is formed by transport facilities relative to the investor countries, peculiarities of national investment climate, the cost of main factors of production, capacity of the market and transaction costs connected to crossing the national border.

Russian-Chinese relations took as an example because of its large scale and dynamics of progress in foreign trade volume structure, can distinguish *five features of Far Eastern model border cooperation* [1]:

a) fast pace of development of frontier and shuttle trade, esp. in first half of 1990-eis was caused by liberalisation and high rate of inflation;

b) huge gap between officially registered and hidden commerce;

c) irrationality of frontier trade structure, where product types of Russia and China are opposite;

d) cyclicity of frontier trade. Strong dependence on price situation on external market and on trade regime in Russian-Chinese relations with the ongoing structural crisis and inflationary expectations in Russia, conduces short-term effects that influence promotion of frontier trade turnover;

e) there are barriers that are attributed to cultural and civilization paradigms.

3. One of the major directions of further sustainable development of Russian Far East economics can be its mastering the world through traffic markets, as the shortest land, sea and air tracks which connect Western Europe and Northeast Asia and Asian-Pacific Region (APR) lay in its Far East territories. In other words, *we can speak about the realization of transit function of a border territory through its national and international transport corridors* (NTC and ITC).

For example, with good reason we can talk about creation of international transport corridor «Harbin-Bolshoi Ussuriyskiy Island-Vanino» in Khabarovskiy Kray. That would enable direct transport way of Chinese goods to the Kray's sea ports and shorten its delivery to Japan, the USA and South Korea for 4-6 days at the minimum. The creation of this corridor is possible on the base of forming through transit

traffic of supersize containers from the northern part of Heilongjiang province to Vanino port (Vanino-Soviet-Gavan transport hub in future) and further to Japan, South Korea and the USA via regular shipping operations.

As it's known, south of Russian Far Eastern Federal District borders on Heilongjiang province, which is supposed to take all load of planned increase of foreign trade turnover with Russia – approximately up to 60-65 bln USD by the end of 2011. Although now the carrying capacity of the province can't secure unobstructed movement of foreign shipment and it is yet to meet the requirements of international markets. That's why the underdevelopment of transportation is a constraint for the economic growth of the province. Advancing economically at a fast pace, China makes efforts to develop its transport infrastructure as quickly as possible. Expectations are especially put on ITC as an essential element of the country's integration into the global economy. In the northeast of China these ITC, which have ways out to Russian through Far Eastern Federal District, are:

1) ITC «Suifenhe»: ports Nakhodka/Vostochny Port – Suifenhe-Harbin – Manchuria- Zabaykalsk – Trans-Siberian Railway (TSR);

2) ITC «Tumangan»: North Korea ports – Changchun – TSR;

3) ITC «Dalian»: Dalian – Harbin – Heihe – Blagoveshchensk – TSR;

4) ITC «Tianjin»: Tianjin – Beijing – Erenhot (Erenhot) – Ulan Bator – TSR;

5) Western trans-Korean corridor: Busan – Seoul – Pyongyang – Sinuiju – Shenyang – Harbin – TSR;

6) Eastern trans-Korean corridor: Busan – Rasŏn (Rajin) – Sonbong – Khasan – TSR.

4. It's a known fact that border regions of Russian Far Eastern Federal District, which have deformed economic structure, lack the necessary innovative base. At the same time, we believe there are prerequisites for its origination yet and creation of so-called «*point*» *innovative regional systems* on this territory. That is why we consider *prioritized use of scientific and technical, academic and intellectual potential* of Russian Far East universities, research institutes and branches of Russian Academy of Science to be one of the major directions of border cooperation.

The special attention should be put on the export potential of Far East universities. Bordering China – the largest importer of educational services, Russian Far East has a chance to develop its competitive advantage and promote Russian education to China and other universities of APR region via universities of Far East. The realization of this export poten-

tial can be done by introducing innovations not only into educational structure, but also into regions themselves and whole country. The realization can come in form of large university complexes, where universities' and various professional education institutions' intellectual resources will be integrated into the academic science infrastructure. The example of such complex can be Far Eastern Federal University in Vladivostok.

These innovation complexes both modernise the higher education system and create a system of foreign personnel training in Russia. Teaching of international students can have positive effect for the Far East region, as it can help to solve demographic problems, scarcity of labor, certain difficulty that follows the transition from raw-material based economics to the innovative one.

Besides, the service infrastructure for should also be improved, so that foreign students could live comfortably and study effectively in the university campus. Considering the fact that the share of service in Gross Regional Product of Far Eastern Federal District is permanently growing, it can be a catalyst for the growth of economics of the whole region, although we must acknowledge that there should be developed appropriate normative legal and personnel support from the central government. This direction should become a part of regional policy of the government. There is a lot of work ahead in this direction now, as the implementation of this policy has just begun. In addition to that, in recent years there has seen a visible trend of university entrants, student and graduates from Far East Universities going to study (for both undergraduate of graduate studies) abroad to the nearest APR countries, such as China, Korea, Australia, etc.

5. Another widely underused and underdeveloped resource of Russian Far Eastern territories (both land and seaside) is *recreation, tourism (first of all extreme and eco-tourism) and exclusive hunt and fishing tours*. Beside positive economic impacts it can bring, it is also a great possibility to include *territories with ecologically clean plants* (e.g. for medical use) into economic sphere, develop *marine culture, create a network of marine biotech parks, and lay the foundation of recreation-touristic-medicine cluster*; in the first place it can be done in the southern regions of Far Eastern Federal District – Amur Oblast, Primorskiy and Khabarovskiy Kray, etc.

According to studies made by S. Maslennikov, if we assume that the price of goods decreases with the expansion of its manufacturing, and consider the average cost of hyd-

robiontes cultivated today to be 1 USD, gross revenue from the marine products will exceed 600 mln USD a year. Moreover, this low cost will enable Primorskiy Kray production to penetrate huge markets of Japan, Korea and China. In addition, the development of marine cultures can secure more than 500 000 work-places (including those created in the related spheres like service, building or transportation, etc.), which is comparable to the total number of working population in Primorskiy Kray. It also draws us the perspective of developing of network of marine biotech parks along the coast of Russian Far Eastern seas (estimated to bring 1,5-3 mln tons of rough materials a year) and creating of approximately 1 million work-places on the coast, which would partly compensate the decrease in the resource production. These figures show the great potential of developing of mariculture and marine biotech parks as a unique reserve of attracting people to Russian Far East and securing their living on the border regions [3-4].

6. It's obvious today that the capabilities of frontier and shuttle trade are exhausted, but there haven't been developed new directions of frontier cooperation yet. To overcome the challenge of frontier collaboration we need a broadening of interaction, including the advancement of nonmaterial and investment spheres. Moreover, the concepts of frontier trade themselves must be reconsidered. That is why a new model, under which the main motive of Russian economic space development should become manufacturers' interest in raw material and sale markets, partners and mediators and in creation of new production chains, is worth consideration. For Russian-Chinese relations on Far East this means the need to provide conditions for activation of frontier cooperation.

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*Materials of Conferences***ESTIMATION OF INFLUENCE OF
2-(1'-HYDROXY-4'-ISOPROPENYL-
1'-METHYLCYCLOHEXYL-2'-THIO)-
METHYLETHANOATE ON LIPID
PEROXIDATION AND ANTIOXIDANT
SYSTEM OF ANIMALS IN CHRONIC
PROLIFERATIVE INFLAMMATION**

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Experimental study of 2-(1-hydroxy-4-isopropenyl-1-methylcyclohexyl-2-thio)-methylethanoate on lipid peroxidation and antioxidant system of mongrel rats in chronic proliferative inflammation using «fedora granulomas».

Methods: investigation was conducted using 20 white mongrel male rats weighing 150-180 g. Chronic inflammation was modeled using «fedora granulomas» method (V.P. Fisenko and co-authors, 2000). The first group of animals served as a control against the background of inflammation. The second group had being injected 2-(1-hydroxy-4-isopropenyl-1-methylcyclohexyl-2-thio)-methylethanoate at a dose providing pronounced anti-in-

flammatory effect (200 mg/kg) during 7 days. The animals were sacrificed by decapitation under light ether anesthesia. State of lipid peroxidation (LP) was studied using malondialdehyde (MDA) indicators and middle molecules (MM), the antioxidant system was judged by the activity of the enzyme catalase (KAT).

Results: the results indicates that 2-(1-hydroxy-4-isopropenyl-1-methylcyclohexyl-2-thio)-methylethanoate injection leads to significant reduction in level of MDA in the blood serum at an average by 2,7 times, in the liver homogenate – by 1,6 times and reduction of MM concentration on 47,5%. At the same time the enzyme-KAT activity in the blood serum increases at the average by 1,45 times.

Conclusion: 2-(1-hydroxy-4-isopropenyl-1-methylcyclohexyl-2-thio)-methylethanoate decreases reduce LP reaction intensity increased as a result of inflammation and stimulates antioxidant protection of animals thus demonstrating, anti-inflammatory effect using «fedora granulomas» model.

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*Materials of Conferences***REFORM OF THE LAW-ENFORCEMENT SYSTEM IN KAZAKHSTAN**

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Currently active in Kazakhstan, carried out legal reforms. According to the President of Kazakhstan N. Nazarbayev, «within the framework of reform of the law-enforcement system 16 laws were adopted. Legal mechanisms for protection of property were introduced; humanization of criminal legislation on crimes, which do not pose a grave threat to society, was carried out; the scope of non-confinement punishments, as well as preventive measures alternative to arrest, was expanded. Due to this, only this year about two thousand people convicted for crimes of small and medium gravity would be released from prison. The staff of the law enforcement system was reduced per 15 percent. Their structure was optimized. The functions unusual for law-enforcement agencies were transferred to the private sector. Significant changes are taking place in the judicial system.

An uncompromising fight against corruption is under way. Currently, according to international experts, the anticorruption legislation in Kazakhstan is recognized as one of the most effective. In total, for the last two years more than 40 officials at the national level, more than 250 officials at regional and city levels, including 39 Akims and their depu-

ties, were charged with criminal offence. Criminal cases were filed against a minister of environment protection and a minister of healthcare, a chairman of the statistics agency, vice ministers of the ministry for emergency situations and the ministry of defence, the chairmen of the «Kazakhstan Temir Zholy», «KazMunayGaz» and «Kazatomprom» companies, resulting in convictions. In three years, our country's rating in the global anticorruption index has improved by 45 points. According to this index, we are at the top positions throughout the CIS. This work will continue without compromise. In the World Bank report, in 2010 Kazakhstan was recognized as the leader of reforms in the interests of businesses. In the global ranking of countries with the most favourable business climate, Kazakhstan takes the 59th place among 183 countries of the world. In general, the facts of unreasonable interference of state bodies in the activity of economic entities were minimized. Last year, the Customs Union of Kazakhstan, Russia and Belarus was launched. According to the results of the 10 months of 2010, the volume of trade with Russia and Belarus increased by 38 percent. It is a stimulus for our businesses to produce competitive goods and services».

Readings: 1. Address of the President of the Republic of Kazakhstan, Nursultan Nazarbayev, to the People of Kazakhstan, January 28, 2011.

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*Materials of Conferences***CLINICAL NUTRITION SUPPORT IN LIVER AND KIDNEY'S INSUFFICIENCY AFTER ABDOMINAL SURGICAL OPERATIONS**

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The liver and kidney insufficiency in the early postoperative period are the actual problem because of menacing at mortality and severity in patients with acute surgical pathology. Progressing of hepatorenal complications are the cause of the severe protein-energetic damages that respond poorly to the therapies. Protein-energetic metabolism correction in the treatment of patients with postoperative hepatorenal insufficiency is the most actual problem in contemporary clinical nutrition.

Methods: It was evaluated materials from 1527 patients with acute abdominal surgical pathology: 540 patients with acute pancreatitis, 426 – bowel obstruction, 561 – peritonitis (283 – perforation of gastrointestinal tract, 175 – acute appendicitis, 103 – acute biliar pathology). Acute liver and kidney injury was documented in 449 (29%) patients. Pre- and postoperative dopplerography values were obtained and used to calculate functional liver reserve (FLR), and glomerular filtration rates used to calculate functional kidney reserve (FKR). Nutritional status was estimated by Nottingham questionnaire and blood tests.

Results: Basing on predictions of hepatorenal complication's risk, early biomarkers and qualified hepatorenal insufficiency stages (indemnification,

subcompensated and failure stages) and the protein-energetic deficiency we degreed the preventive treatment and nutrition correction. Revealing of high risk was the indication for preventive treatment. In case of high risk of hepatorenal failure the functional liver and kidney reserves were poor or loss (FLR – $1,4 \pm 0,03$, FKR – $4,3 \pm 0,2\%$). 89,4% patients with high risk and poor functional reserve had liver and renal dysfunction and needed in directed nutrition support. In case of evolved hepatorenal insufficiency the complex of intensive therapy must include: correction of coagulopathy and blood circulation, hepato- and nephroprotection, detoxification (with extracorporeal support) and, undoubtedly, protection of the protein-calorie deficiency by nutrition support (special solutions and drugs). 128 patients needed in the extracorporeal liver and kidney support. All patients with the extracorporeal liver and kidney support were needed in advanced nutrition support (amount of aminoacides per day without extracorporeal support – $0,67 \pm 0,01$ g/kg, in case of extracorporeal support – $1,82 \pm 0,03$ g/kg and accelerated speed of infusion – $0,2$ g/kg per hour). Applying early extracorporeal detoxification is the indication for isochronic support to losses of the protein-calorie metabolism by special parenteral and enteral compounds (nephro- and hepatotropic action) with the maximal admissible dosage of omega-3 fat acids.

Conclusions: The patients with the high risk of liver and kidney insufficiency and poor functional reserves are needed in the special approach for nutrition support.

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*Materials of Conferences***METHODOLOGICAL PRECONDITIONS
OF THE EDUCATION SYSTEM
INSTITUTIONALIZATION**

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Modern objective reality is characterized by a transformation of institutes that are related to the definition of the major subjects and their interaction on different objects, methods of interaction in fields of society, culture, economy, education, every one of which has its own functional content, structure, rules, regulations, etc. Alterations in objective reality define those in qualitative condition of institutes, including the institute of education.

However, the temporal factor of these alterations may vary. Fixed norms, rules, and functions of institutes start to conflict with the introduced innovations. A conflict is a development, and its solution requires time. Institutionalization here stands as a factor of innovation differentiation and is determined by such characteristic of human perception as intentionality.

Intentionality is an ability to provide real objects with a specific functional content. The formation of new institutional facts corresponds with a collective intentionality. Collective intentionality provides an objects with a status-function. The object is institutionalized, in other words, emerges a fact of educative, economic, cultural reality that exists as a definite institution.

The dynamics of development of the education system as a multi-factoral phenomenon can be observed at the level of institutionalization.

Institutionalization is defined by the vector «innovativeness», however, an institute formalization is characterized by a vector of qualitative definition of an institute functional content. Concentration of new qualities up to the limit indexes that define a structure, content, and form of an institute conditions a transformation of institutes and provides them with new characteristics. Thus, the concept *innovative characteristic* stands as a methodological precondition of institutionalization of modern education in terms of modernization.

Evolution theory is defined as a methodology of institutionalization. Evolution approach allows us to preserve the singularity and basic qualitative characteristics of an object under a gradual updates of its components via the process of integration of innovation system into its basic construct. Novations condition conflicts, thus takes place evolution transformation/modernisation of institutes.

Institutes are stable systems that influence organizations/institutions, individuals through a descending cause connection. Institutes have impact upon fixed habits and definite way of thought and

behavior and form preferences. Social interactions, in their turn, also influence institutes through, for example, a demand for certain professions that define price alteration on education services market.

Leading part in mechanisms of descending cause connection belongs to education that is defined as a transformation of individual characteristics and preferences. Thus, education does not only define perceptive abilities of a person, but also forms the vector of qualitative alteration of institutes within the limits of reverse, now ascending cause connection.

Innovative, «high» technology of education define innovative characteristics of institutes being an important factor of institutional education modernization. That is why a concept of *educative/training technology* stands as a methodological precondition of education system institutionalization.

So, institutes define legislations of social development, providing for its singularity and being the regulators of social phenomena in economic, political, and cultural area. Culture in frames of institutionalization is studied as a system that provides for a maintenance of important institutional models. In this context culture can be defined as an ideological basis of institutionalization that supports system integration of social groups in correspondence with the main function of ideology that is to maintain the existing political and economical structure and form the corresponding systems of values that are shared by the majority of the population.

As a precondition of education system institutionalization we consider a concept of «ideological culture» that characterize the maintenance of significant, traditional institution models and formation of new in correspondence with the modern reality.

Outlined in this research as methodological preconditions concepts of «innovative quality», «education/training technology», «ideological culture» form an integrative sense field of new integral concept – «institutionalization of modern education system».

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**METHODOLOGICAL ASPECTS
OF EDUCATION QUALITY MANAGEMENT
IN MODERN INSTITUTION
OF HIGHER EDUCATION**

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The problem of education quality management in modern conditions becomes especially actual in terms of new requirements to a higher education

institution by the market of educative services and labour market, rightful participants of which is a modern educative organization.

A concept of inner-institutional quality management is a complicated objective-oriented dynamic system of theoretical-methodological and technological knowledge and ideas that are based upon the principles of synergetic approach and accumulates perspective directions of the education system development on basics of quality apprehension as a universal metafactor, thus allowing us to integrate paradigm and separate subjective knowledge into a single whole.

A process of continual quality improvement demands to consider principles that actualize the methodology of Kaizen approach:

- Each process can be improved;
- Each improvement, even a small one has certain value;
- A series of small improvements results into significant positive alterations;
- Mistakes are considered as possibilities for improvement;
- Each employee is expected to contribute to improvement processes;
- It is necessary to prevent problems, not to fight them.

Regulative function of inner-institutional education quality management is supported by a system of principles at the following levels: all-scientific, strategic, practice-oriented, tactical, specific-scientific, and factorial.

Function system of inner-institutional quality management includes informative-analytical, organization-technological, control-diagnostic, regulative-correction, normative, integrative, management, function of activation and staff management.

We should also underline that a role of pedagogic and management professionalism of a tutor who must participate in decision-making process, becomes more important in a system of inner-institutional education quality management.

Functioning of a quality management system takes place under the conditions of the corresponding informative-analytical environment that must correspond to the following requirements:

- Functioning and development of a system and all its elements takes place under the total consent with a functioning of other systems that interacts with it, thus conditioning the possibility to achieve their objectives;
- Within an interaction process each system aims for its self-survival and balanced development;
- A system maintains and enriches its own energetic and information balance at the account of systems that interact with it via stable feedback system;
- System elements must be dynamic and have the ability to transform from one state into another;
- A system must be directed to achieve a result, sufficient for its functioning and further development.

Here a great significance has a stability of an informative environment (removal of entropy), that is defined by the following factors: informative system openness, prognostics, moderate management strictness, preservation of quality provision system operation, separation of system elements.

The totality of the outlined factors conditions the necessity of the introduction of formalized components of the quality management system that is based upon the creation of informative-analytic environment with an implementation of modern means of information technology.

Quality management system is supposed to solve problems of an institution competitiveness. Its competitiveness components (financial-economic, marketing, material-technical, personnel, graduates competitiveness) are targeting waypoints of development, they imply level decomposition that is provided by long-term and short-term programmes. Competitiveness is exactly the basic factor that directs pedagogic collective of an institution for innovative search and permanent development.

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**PROFESSIONAL AND CREATIVE
SELF-DEVELOPMENT OF STUDENTS
STUDYING THE HUMANITIES IN RUSSIA
AS A PERSPECTIVE DIRECTION
IN THE DEVELOPMENT OF SCIENCE**

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The problem of developing a creative personality has always been one of the urgent problems of pedagogy. Modern society sets education new goals. The main aim is to focus on the personality, to develop its creative potential, to form a personality which can develop and actualize itself.

At present the priorities of education are changing, there is a growing tendency to focus on the student and a lot of work is carried out to search for unlimited abilities of each student's personality.

In this article we discuss the question of professional and creative self-development of students. The key point of this question is stimulating personal development of the students which is aimed at conscious self-expression, development of the inner potential and confidence in their abilities which helps to actualize themselves in cognition as fully as possible and to strengthen their values. Thus self-development contributes to the enrichment of their self concept.

A research was conducted among senior students of Ulyanovsk State University who study the humanities. For the primary diagnostics we used the methodology «Personal Orientation Inven-

tory» made by V. Smekal, M. Kucher and a self-actualizing test of E. Shostrom. Also we have developed Creativity Training and Self-Confidence Training.

We asked 205 respondents and made a conclusion that students who are task-oriented showed a desire to cooperate, learn something new, work and get an effective result. It is characteristic of the students who have a high level of self-efficacy to have a need for achievements, which is connected with their level of aspiration. It is typical of them to be persistent in achieving the goal they set and not to be content with what they achieved. They tried to solve a problem creatively and they were willing to accept any help from a specialist and to help those who needed help if necessary.

According to the results of Shostrom's test we have pointed out that effective students showed a high index on the scale of support. Such students are independent in their actions, they have their own goals, beliefs and values in life. There is a high index on the scale of behavior flexibility in relationships. Such students are aimed at interaction with others and can quickly react to changes. It is interesting to point out that these students showed high indexes on the scale of creativity which proves that they are aimed at creative development of their personality. Students with a high level of creative potential show a stable inner world when they carry out effective activities. They feel rather confident and comfortable in a new group of people and they have developed communicative and organizational skills. They have balanced relationships with other people.

We have also come to the conclusion that to achieve good results in one's studies and social activities one should have a positive social and psychological climate in the group of students where he or she studies. Those who have a high creative potential have good relationships with their teachers. Thus the conceptual foundation of psychological and pedagogical support of self-development is the pedagogy of cooperation.

When we talk about creative self –development, we mean quantitative and qualitative changes which happen in the process of productive and creative activities aimed to search for original and creative ideas and solutions on the problem of self-development. On this basis we have worked out Creativity Training and Self Confidence Training. The main aim of these training programs is to stimulate self-development of students which includes several points:

1. For students to understand the necessity of self -knowledge, self – education, self – development and self-evolution on the basis of self – diagnostics of individual abilities.

2. To evaluate the results of one's studies or work and to analyze the reasons for success or failure, to understand possible personal and professional difficulties.

3. To understand and choose the methods needed to overcome difficulties in creative personal development by themselves.

In this article we have pointed out the procedure for creative self–development of students and by this we have defined the order of actions of students when forming components of creative self-development.

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PARADIGMAL ASPECT OF A CATEGORY «QUALITY RESOURCE» OF EDUCATION

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An education quality nowadays is considered as a major criterion that characterizes the condition of an education system in its functional condition that prognosticates the prospects of its continual update under terms of scientific knowledge development process, development of new technologies, globalization of multicultural interaction. Category «quality» allows us to study a phenomenon as an object that reflects both individual and «overall».

Education quality that we conditionally outline as a characteristic that defines the uniqueness of the phenomenon «quality resource» of education, characterizes its multiplicity of aspects, dimensions, complexes, its synergetic description character. Revelation of quality, or, more exactly, definition of quality resource parameter characteristics while projecting a pedagogic activity is conditioned by a context of paradigmatic approach.

Nowadays the model of scientific-pedagogical activity, or paradigm that is provided by such methodological characteristics as a problem, urgency of a theme, object, goal, objectives, hypothesis, outlined ideas, scientific innovativeness, and practical significance remain invariable. But a model of practical activity alter along with an acceleration of technological progress and, therefore, alteration in social cultural conditions. We can hypothetically suppose that when innovative massive of practice exceeds a «critical» limit, an alteration of educative science paradigm is inevitable.

Realization of pedagogic integrative function actualizes the foundation of interdiscipline synthesis phenomenon that defines the methodology of a new paradigm, thus conditioning a correction of a category apparatus, outlining and conceptualization of basic ideas, including the concept of «education quality resource».

Conceptualization of the idea «quality resource» is legally conditioned and we study it in the

context of multi-aspect modeling: system, system-synergetic, legal, conceptual, axiological, experimental, factorial, mathematic, economic, resource, matrix, etc. Level comprehension characterizes the definition of a concept, theoretical model using the methodology of approaches that correlate with the projected models. Thus, conceptualization of the education quality resource takes place within the limits of construction that is vectorally-aimed to form a theoretical model and its practical realization as a project activity that is aimed for a solution of a specific actual problem and a number of other problems.

A project development is a development of a number of models: *prognostic* – to optimally distribute resources and specify goals; *conceptual*, that is based on an informative database and action plan; *instrumental* that helps us to prepare means of execution and train tutors to work with pedagogic instruments; *monitoring model*, needed to create feedback mechanisms and means of possible deviations correction; *reflexive model* that is created to produce solutions in case of unexpected situations.

For each project a matrix quality model is composed. It is an integral visualized scheme of a quantitative digital data massive of a realized project monitoring, that is transformed into criterion characteristics of the obtained results quality. Visualized matrix allows us to correct the correlation of an experiment process and dynamics of its qualitative es-

timation, revealing situations that are characterized only by digital indexes, or outlined by estimation criterions – indications of a quality level.

The procedure of a theoretical model (concept) formation includes the following stages:

1. Introduction into process and selection of methodological basics for modeling, qualitative description of the research object.

2. Establishment of modeling objectives.

3. Model construction with a specification of the dependence between the major element of the studied object, definition of object parameters and evaluation criterions of these parameters alteration, selection of estimation methodics.

4. Study of the model validation in the solution of its objectives.

5. Model implementation in pedagogic experiments.

6. Content interpretation of the modeling results.

After that takes place the creation of sensible field that combines the concept and the project and is represented, first of all, by a conceptual apparatus, modeling and projecting methodology. Ordered context of a sense field forms an element of an integral matrix of a new pedagogic activity paradigm.

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*Materials of Conferences***PROBLEM AREA OF A PERSON'S SPIRITUAL EXPERIENCE**

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The meaning of the category «spirituality» is defined by a context of a person's life world and characterized by an initially fixed «problem area». The problem of an «outer» projection is in uncertainty of interiority and apprehension of life context; the problem of an «inner» projection lies in the interpretation and apprehension of an uncertain essence of a person's inner «Me». A man's life world is characterized by a category of antagonism that is displayed in the constant comprehension of unknown, acceptance or non-acceptation of new sense, correspondence of the new with its already mastered analogues.

Life world of a person is characterized by different types of activity that define the content of spirituality. In other words, spirituality stands as a basis of a man's life. Life itself is conditioned by the pattern «spirituality». Contexts of ideas life world, life, and spirituality have multiple dimensions and, therefore, are antagonistic, uncertain.

Spiritual experience of a person contains problems of being reality and higher spiritual intensions. A man's soul needs a centre of higher values, and usual fuss of life defines the multiplicity of emotion dimensions. In fact, a person lives in the world of images that continually alter. An approach to a higher spirituality is conditioned by the creation of new images that are continually under procedures of interpretation. However, problems are founded on the being reality.

Interpretation, comprehension, and overcoming define the algorithm of movement to a higher spirituality. In other words, permanent procedure of interpretation creates the problem area, thus defining the movement to the apprehension of a higher spirituality. Interpretation, apprehension, and comprehension of a centre of higher values accelerate the problem area of usual reality. Thus, interpretation is continually decomposing a personal sense system, enriching image-sense pattern of a person's spiritual experience.

Problem area of a spiritual experience in its temporal aspect is represented by an «integral time», vector of which combines the past, the present, and the future. A man can freely manage time, taking his «imagined Me» into different situation contexts that can be found in the past and projected into the future.

It seems justified to study the phenomenology of the problem area of spiritual experience through categories «imagined Me» and «sensible Me». Within the process of a dialogue, polemics, reflection we enrich of sensible and image characteristics of a person that define the peculiarities of its devel-

opment. In its essence the development process is defined by the presence of a temporary antagonism between image and sense, the transformation of an image context into sensible in their «interaction point». In other words, an antagonism between an image and sense is being accelerated. At the moment of their most acute opposition an approach takes place. Contiguity in an «interaction point» is actually a merging of a sense and image. Instant unity allows us to fix a new step (or edge) of a person development.

Criteria that define the development steps are studied as higher values that characterize a spiritual revelation of a personality. Spiritual is a code, decoding of which allows us to study and comprehend a person. Decoding is defined by the procedure of interpretation. Interpretation as a process is subject-objective. Objectiveness corresponds with peculiarities of comprehension of spirituality/morality in a certain social cultural situation.

Subjective factor is comprehended in the context of image-interpretative approach that provides for a dynamics of broadening and enriching of a person's spiritual experience. Realities of our environment are classified within the limits of personal object-sensible line of phenomena that correspond with an axiosphere of spirituality. A movement of personal sense in direction of an object interpretation and, therefore, creation of new images takes place. Each phenomenon of the world is an image that contains projections of the past, the present, and the future. In other words, an image is uncertain, antagonistic, and initially three-dimensional.

Images that are actual for a person, obtain the significance of senses. Senses obtain verbal characteristics that are necessary for its «outer» broadcast in order to undertake a communication. Reflected «outer» speech-thinking complexes are interpreted by some and declined by the others. An acceptance of an object image is possible, including that in different temporal dimension. In case of acceptance of sensible projections we can see a broadening or restructuring of hyper-textual organization of sensible images. If an image is not considered by a person as an adequate to its value-sensible parameters of a life world, then a search for analogues begins. If sensible projections are not found, the image is declined, or a person applies «inside» in order to specify content characteristics in a different context. Thus we analyze the problem of introduction of a given from «outside» image into a personal plan of value-sensible preferences. Here emerges the «area» of a conflict, solution of which is in fact the development of a person.

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*Materials of Conferences***INFORMATION MODEL OF HEART**

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Information model of heart was developed considering the requirements of the major theories of the most systems and the classic management theory. To analyze the peculiarities of functioning of the information model of heart and its elements a structural-functional scheme has been constructed, it contains four functional modules that are linked to each other on principle «reality – image of reality – project of reality alteration – realization of alterations».

Module 1 – situation model of interaction «specialist (cardiologist) – patient» that has formed and is characterized by traditional periodical consultation in case of patient's complaints or preventive and maintaining treatment.

Module 2 – scheme of heart-vascular system (HVS) within the limits of the concept of a man as a hierarchical structure of management that includes two related contexts: a man from the position of his biological nature – an interaction between heart and functional structures of organism is formed, they are represented as network structures and the man – as a conscious system that includes factors of his way of life, environment, including ecology, customs, ethical and moral settings that influence the condition of HVS (genetically-determined factors are studied as prognosis parameters that display a predilection for separate diseases).

Module 3 – a system model that consists of a number of blocks. Block 1 is the database (DB) that is realized with the defined relations between tables that contain data on HVS diseases, medical preparations, treatment methods that allow specialist to shorten the time needed to access an inquiry information relating his current problem while working in the program complex – automated workplace of cardiologist (AWP-K). While creating the DB we have optimized the table structure «ICD» (international classification of diseases) and «clsp-harmagroup» (pharmacological groups of medical preparations) with usage of programmes that were developed by the author group (Certificate of official registration of program for PC № 2011610223 RF of 11.01.2011; Certificate of state registration of database № 2011620419 of 08.06.2011). Block 2 is the system of monitoring the current information on dynamics of an organism's parameters of each «pa-

tient», its preliminary processing and storing in DB; provides reliability, adequacy, urgency, and confidentiality of the contained information. Block 3 is an interface between a specialist («cardiologist») and system blocks that provides him with an access to the monitoring data of a specific «patient» and to model construction blocks that reflect an influence of internal and external factors upon the heart work as well as the ability to carry out a comparative analysis of the current condition of a «patient» with a «standard» and visualization of modeling results using the system of calculated informing and preventive indicators of HVS condition. Block 4 is a set of models of type «stimulus-reaction» for «training» according to the data of observation and prognosis of possible reactions to combinations of factors «on-line»; interacts with blocks 1-3. Block 5 is a set of models based on mathematical methods and methods of expert systems; it uses data of blocks 2 and 4 as initial and regulates their work. Block 6 is a program complex of medical management decisions generation, it realizes methods of decision support including those for making up text projects on HVS condition.

Module 4 explains the realization of system on specific program-apparatus means. It consists of five blocks that linked via communication channels: automated workplace of cardiologist: model server; server of processing data on parameters of patients' organism condition; personal mobile facility of non-invasive control (in number that is sufficient to meet the needs of a certain number of patients); system of data transfer between mobile devices and stationed access point.

The realization of the described informative model allows us to broaden abilities of a specialist to undertake a basic diagnostics of heart diseases and forecast the development of the pathology; define the localization of myocardium damage in examination of a patient; create special models, for example, to carry out instrumental research on revelation of an impact of a complex of factors upon the predicted condition of HVS.

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PRINCIPLES OF MEASUREMENT OF SURFACES OF EXTRA-TERRESTRIAL TERRITORIES

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In paper principles of measurement of extra-terrestrial territories are observed. Conditions and principles of reception of co-ordinates are presented by a distant method.

Measurement of extra-terrestrial territories is carried out by distant methods. The primary goal of this production engineering is definition of a land-form of space those and sampling of airfields.

At distant researches of a terrestrial surface use geodetic points with known co-ordinates which form a basis for reception of co-ordinates of other points represented in a picture.

Feature of measurement of extra-terrestrial territories is absence on them of a geodetic base or a network of datum points.

Therefore the geodetic base role is played by a space vehicle (SV) path which co-ordinates it is necessary to measure with a split-hair accuracy. In case of not indignant traffic this problem dares easily.

At the solution of the given problem performance of some conditions is required. The first condition. The space vehicle is supplied by the inertial sensor which allows to fix its relative rule in space points during the set moments of a time. It gives the chance to define necessary number of trajectory peaks for definition of parametres of a path.

The second condition. The camera is rigidly fixed on KA and does not change the relative rule in the course of flight on the given section of a path. The

third condition. Co-ordinates of a principal point of a picture and a chamber focal length are known.

The production engineering of measurement of surfaces on space installations is based on measurement of co-ordinates of points of these surfaces on which build models of surfaces.

The production engineering of measurement of points of surfaces switches on following stages.

1. Definition of co-ordinates of trajectory peaks KA for definition of parametres of a path.

2. Scaling of parametres of a path of a space vehicle on the measured points.

3. Definition of co-ordinates of points of shooting.

4. Definition of normals to a path in shooting points.

5. Definition of a relative orientation of the chamber in points of shooting with use of a direction of normals.

6. Solution of an intersection under a condition of equality of scales

7. Definition of co-ordinates of points on surface model on steam of pictures

8. Model scaling on path parametres.

The given approach allows to define parametres of installations in the contactless way and provides admissible accuracy of measurements. As basis of reception of co-ordinates projective methods serve [1].

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