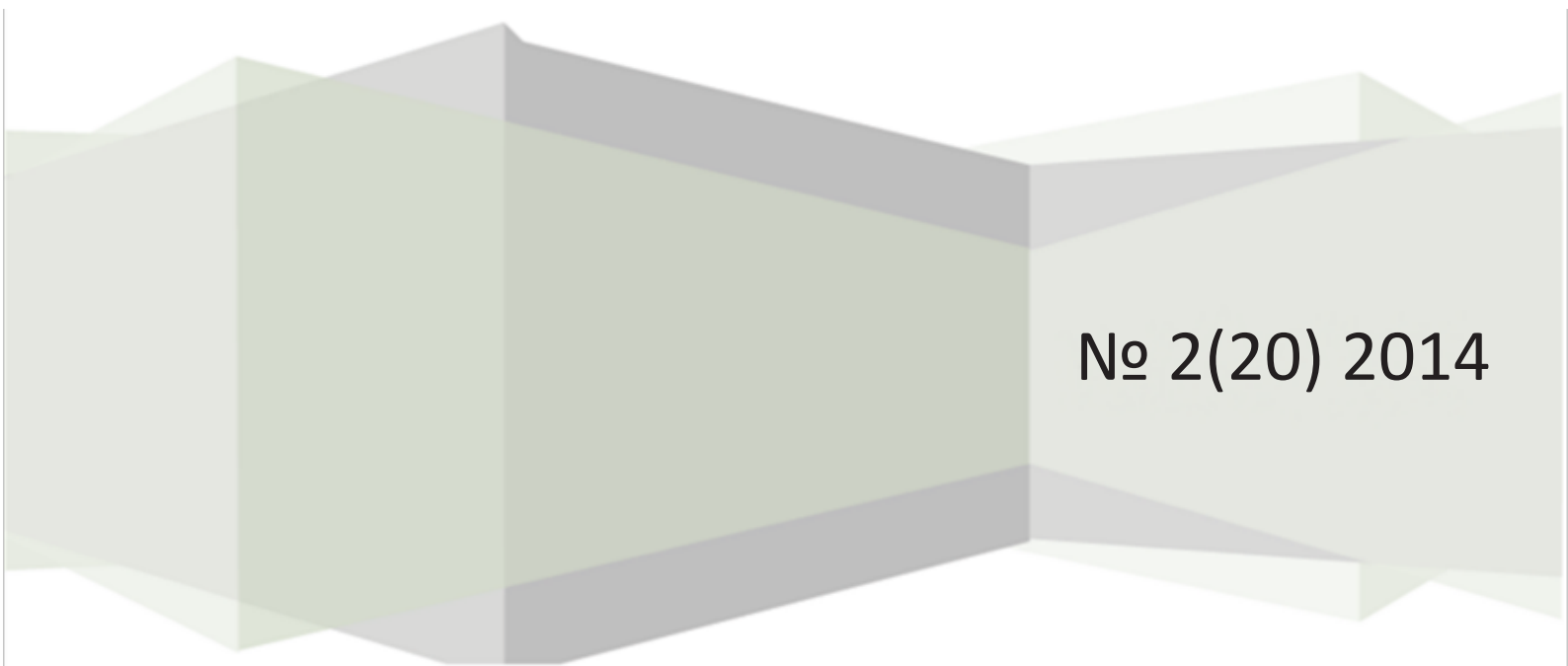


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Formation of Aesthetic Value Orientation of an Individual

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Key words and phrases: artistic attitude; impact of art; interaction with a work of art; practice of artistic consciousness; psychological nature of artistic consciousness; value-sense ability.

Abstract: Artistic consciousness is an internal, psychological condition, transforming potential of art in really existing incentives of aesthetic value orientation of an individual's development. The impact of art is represented by psychological aesthetic approach, which considers a person, who interacts with art on the level of artistic consciousness. The one who perceives art is viewed neither in the art itself, nor outside it; an individual is viewed as special reality with its own laws integrated in the "practice" of artistic consciousness.

The development of an individual engaged in art on the level of artistic consciousness is a psychological and aesthetic approach within the limits of which a psychological impact of art takes place.

The researcher A.A. Melik-Pashaev thinks that a person, perceiving art is situated in a special psychological reality, and has its own laws that are in the "practice" of his artistic consciousness and, therefore, the recipient is contemplated not out of art and not in the art itself. The laws themselves lie in the fact that artistic consciousness is an artistic attitude, i.e. a special kind of connection with the work of art. This very connection, being an active and interactive process provides the interpretation of the values of spiritual culture of society on the individual system of values that have personal meaning, i.e. individual values.

Artistic consciousness is a mediating, inner psychological condition, transforming the potential of art in really existing and efficient incentives. Different scientists (A.G. Asmolov, E.A. Bazeyan, L.S. Vigotsky, G.D. Gachev, L.A. Zachs, E.P. Krupnik) consider the consciousness from two sides: from the phenomenological, where value-semantic, artistic-aesthetic and psychological contexts are represented, and from the operational, which represents three communicative phases engaged in the process related to the art of an individual: pre-communicative, communicative, post-communicative and psychological mechanisms of art impact applied in these phases: artistic and psychological mindset, high feelings of a personality and awareness of the encounter with a work of art as a value-meaning reflection [1, p. 16].

Artistic consciousness of an individual studies it as an integral formation, indicating an interfunctional complex system, which includes three interdependent contexts, with a moving and changing proportion of components: value-semantic (object, subject), artistic-aesthetic (allegorical, metaphorical) and psychological (sensual-rational).

Value-semantic context of the artistic consciousness directs the process of perception, where the penetration of the subject in the halo of artistic work, compassion on a particular artistic reality created by the author. As a result, a work of art comes before the recipient as completed, contemplated world.

An important feature of the value-semantic context of artistic consciousness is “getting” into a work of art, “vision from inside”. Beyond that line of this “getting” comes objectification – an artistic vision of a work of art out of itself, its separating from itself, and then its return to itself, and only from its place, consciousness returned to itself, artistically draws up a qualitatively unique subject of artistic perception as a single and integral whole [2, p. 232].

This process is of psychological nature, based on constant unity of the alienation of the individual from itself and its return to its world when dealing with a work of art: the alienation removes subjectivity and when overcoming the alienation – objectivity is removed. Prudent promotion of the individual’s attitude towards art lies in a complete immersion in the halo of artwork and in its limbo, in the world of his or her own.

According to the scientists (D.D. Blagoy, N.K. Karpova, Y.M. Lotman, L.E. Starostova), artistic-aesthetic context of artistic consciousness is connected with the axiological one and lies in the special interaction of allegoric, hidden plan of artistic consciousness with the open, direct and obvious one. When combining two of these plans, an artistic micromodel of the author’s individual worldview is “spontaneously generated”.

The given context can discover the inner nature of the world, having in approximation some possibilities without limitation, in an unexpected assimilation of various phenomena and objects, to re-consider the world anew. Concomitance of direct and figurative meanings takes place in a completely new undivided integrity of an artistic image.

Together with artistic-aesthetic and axiological contexts there comes the psychological context of artistic mind, which is more specific and lies in the interaction between emotional thinking and logical analysis, which, in its turn, are joined in the period of co-presence, giving its final shape – the shape of the work.

Interaction of these three contexts of artistic consciousness in a personality defines itself as interfunctional, complex, dynamic system, which combines its main ‘components’, such as compassion and contemplation, “getting into the work of art” and impartiality, regressive and progressive desire of consciousness.

Change and development of the internal relations, composing these contexts, are examined by L.A. Zachs on terminology of V.I. Tyupa and establish three types of artistic consciousness: the first type is formed by perceiver’s feelings, his “presence effect” in the events reflected by an artist, compassion (“naive realism”), the second type is formed by the contemplation of the form of an artistic work of art, admiring of its perfection, the “alienation effect”, i.e. the aesthetic pleasure and harmonious maturity of an artistic framework (“arty connoisseurship”), and the third type is formed by sublime effect of art perception that occurs as a result of abstractness and interaction of the basic psychological systems of a person’s attitude to art, such as compassion and contemplation of an artistic form, “getting into the work of art” and impartiality, regressive and progressive desire (“deep connoisseur”).

In the end, the artistic consciousness of a person, together with the phenomenological interpretation of the consciousness acquires operational peculiarities.

Dynamic and substantial characteristics of the process of perception predetermine the artistic and psychological mindsets. The process of perception influences the orientation and the level of evaluation and the estimation of artistic work forms its artistic traditional position, becoming stable in the artistic consciousness of a person [3, p. 59]. There can be set interrelation and interdependence between the stages of the value-based orientation in art and

their most important psychological characteristics, such as social maturity, intellectual level, communicative ability, orientation in educational and leisure realm.

Art influences through artistic consciousness and it is the inner psychological condition, changing the possibilities of an artistic work into the factors that form aesthetic value orientation of a personality.

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Формирование эстетически-ценностного ориентирования личности

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Ключевые слова и фразы: воздействие искусства; общение с произведением искусства; практика художественного сознания; психологическая природа художественного сознания; художественное отношение; ценностно-смысловые способности.

Аннотация: Художественное сознание – внутреннее, психологическое условие, преоб-разующее потенциальные возможности искусства в реально действующие стимулы эстетически-ценностной ориентации формирования личности. Воздействие искусства представлено психолого-эстетическим подходом, который рассматривает личность, взаимодействующую с искусством, на уровне художественного сознания. Воспринимающий искусство рассматривается не в самом искусстве и не вне его; он – особая реальность, имеющая собственные закономерности, которые осуществляются в «практике» его художественного сознания.

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Discourse and Different Aspects of Its Definition

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Key words and phrases: cognitive linguistics; communicative phenomenon; context; discourse; discourse analysis; discourse characteristics; discourse definition; discursive formations; discursive parameters; extralinguistic factors; intertextual interaction; psycholinguistics; semiotics; sociolinguistics; speech production analysis.

Abstract: This article examines in detail all the diversity of approaches to the understanding of the “discourse” concept, covering a wide range of different disciplines. The author of this article demonstrates main phases in the development of the discourse theory, and also highlights that the definition of discourse, incorporating all the stated points of view, would be most exact.

*Discourse is the speech immersed in life.
(N.D. Arutyunova)*

Shift in emphasis of linguistic researches towards communication inevitably mentions such phenomenon, as discourse, since it is only in discourse that the communication itself is realized.

Nowadays it is absolutely legitimate to call the theory of discourse one of the most prospective and dynamically developing fields in linguistics. Today discourse represents the object of research not only in linguistics, but also in semiotics, psychology, psycholinguistics, sociolinguistics, hermeneutics, cultural anthropology, etc. in that case, only through the synthesis of scientific results of various disciplines it can be possible to give the definition of such concept as discourse with the utmost accuracy. In our opinion, it would be pertinent to pay close attention to the question of formation of this concept.

It should be mentioned that initially the concept of discourse had quite an ambiguous interpretation. The 1950s marked the appearance of the term “discourse” in linguistics, and then there were two main interpretations to be observed: Émile Benveniste understood discourse as a speech phenomenon inseparably connected with the signs of its attachment to the speaking subject; on the other hand, for Zellig Harris discourse was the language expression exceeding the sentence, in other words – a text fragment from the point of view of its linear organization. Obviously, these definitions served as the basis for the main directions of modern discourse studies, one of which is the analysis of speech production from the point of view of connectivity, and the global semantic organization; and the other one is the analysis of the same speech productions together with the rules of their application taking into account the sociocultural and cognitive factors representing their direct determinants.

In a broad sense discourse is understood as a coherent text in conjunction with the

extralinguistic factors (pragmatic, psychological, sociocultural, etc.) which directly influence both its creation and its perception; in other words it is “the text in an eventful aspect” [1, p. 136]. E.S. Kubryakova agrees with the conception of N.D. Arutyunova and provides its further development, claiming that discourse “demands, when investigating it, the obligatory accounting of all the social parameters of the events, all the pragmatic factors of its implementation” [2, p. 77]. Thus the special attention is paid to the processual aspects of discourse, which is to be considered “online”, i.e. in the course of its creation or in the course of its understanding. According to T.A. Shiryayeva’s fair remark, “language is implanted in the acts of communication and can’t be adequately described beyond the limits of communicative contexts, which is most relevant for the understanding of the nature of language, text, discourse” [3, p. 13]. E.F. Kirov gave a rather expressive definition of discourse, having called it a huge fabric made of the statements, attending and included in a chain of real events, being their integral component [4].

The definition of discourse, given by V.Z. Demyankov, who was working within the framework of cognitive linguistics, seems to be interesting as well: “the text in the process of its formation in front of the interpreter’s mind is called discourse” [5, p. 32]. It is also worth mentioning that though discourse, according to V.Z. Demyankov, represents a set of sentences or their fragments, the content of discourse is often concentrated round a so-called “discursive topic”, representing a certain basic concept. V.A. Zvegintsev adheres to a similar point of view, as for him discourse is a text unit which represents a “complex whole or an allocated substantial unity, which at the level of language is realized in the sequence of the sentences connected among themselves by the semantic relations” [6, p. 287–288].

According to N.F. Alefirenko, discourse can be interpreted from the point of view of semantic syntax [7], considering the fact that the semantic relations between the sentences and the substantial unity represent categorical characteristics of discourse.

V.V. Petrov and Yu.N. Karaulov call discourse a difficult communicative phenomenon including not only the text, but also the extralinguistic factors, essential and necessary for the full understanding of the text [8].

O.V. Platonova and S.I. Vinogradov hold a similar opinion, saying that discourse is the communicative event consisting in the interaction of the participants of the communication, through the verbal texts and/or other sign complexes, corresponding to a certain situation and certain sociocultural conditions of communication [9].

M.L. Makarov, analyzing various points of view on the matter, puts in the forefront three main approaches to discourse definition in linguistics. The first approach which is based on structurally focused linguistics, considers discourse as a certain segment of speech, consisting of several sentences, which possess a certain semantic link. The second, functional, approach sees discourse as any use of language in a sociocultural context. According to the third approach, offered by D. Schiffrin (Schiffrin 1994) and paying special attention to form and content interaction, discourse is represented not simply as a mathematical sum of several statements, but a set of contextually organized units of language structure [10].

Considering various approaches to the definition of the “discourse” concept, it is necessary to mention the perception of discourse as a certain semiotic phenomenon. Studying this phenomenon from the semiotic standpoint, Algirdas Greimas and Joseph Courtés characterize discourse as a semiotic process, thus emphasizing that “all set of semiotic facts (relations, units, operations, etc), settling down on syntagmatic language axis” [11], can refer to the discourse theory. Finishing discourse justification from the point of view of its structural and semiotic understanding, it is possible to claim that that discourse is a result of operating with deep forms (semiotic and narrative structures and their transformations in the discursive structures) which

gives an augmentation of semantically significant divisions.

Saying that “discourse understood as a text, immersed in a communicative situation, allows a set of measurements” [12, p. 5], V.I. Karasik defines this concept, being guided by the positions reflecting the main approaches in this direction of linguistics. From the point of view of pragmalinguistics discourse can be considered as an interactive activity which is carried out by the communicants, taking into account such parameters, as information and emotional exchange, various conversational strategies, the ways of creating the perlocutionary effect. In a psycholinguistic aspect discourse is understood as a transition, switching from an internal code to the actual verbalization in the course of speech production: in this case such parameters, as socio-psychological type of the language identity of each of the participants of the communication, and the role set are considered. In the linguostylistic relation discourse deals with the differentiation of the communication registers, the oral and written speech differentiation (taking into account its genre diversification). In structural and linguistic aspect such positions, as formal and conceptual connectivity of discourse and the principles of its segmentation are considered. Communicative specificity within a particular ethnic group, taking into account certain models of speech behavior, is in the center of attention of the linguocultural aspect of discourse. Cognitive-semantic approach studies discourse, foregrounding such structures of knowledge, as frames, scenarios, cognitive types. And, at last, the sociolinguistic aspect in discourse studies is focused on a certain social group, analyzing social and role conversational stereotypes and a sociocultural context. Following V.I. Karasik, we also want to emphasize that the above-mentioned approaches should under no circumstances be considered as mutually exclusive. After all, it is exactly thanks to the integrated approach, taking into account many (if not all) of the above-stated aspects, that the complex analysis of speech production is possible; that analysis “can possess explanatory force, i.e. explain the reasons of any given language phenomena, to be more exact – the speech embodiments of language” [13, p. 16].

Michel Foucault, being an authoritative scientist and a bright representative of the French structuralism and poststructuralism, calls discourse a social practice consisting of statements, claiming that “it is a thin contacting surface which is pulling together language and reality, mixing lexicon and experience” [14, p. 49]. Such term as “discursive formations” also belongs to M. Foucault. The discursive formation in fact represents nothing else but the sequence of statements correlated to certain fields of knowledge (medicine, politics, etc.). In other words, discursive formations represent public practical areas. In the light of this M. Foucault gives one more definition of discourse: “Discourse ... is not consciousness which places its project in an external form of language, it is not the language itself and, especially, not some subject speaking it, but the practice possessing its own forms of coupling and its own forms of sequence” [14, p. 168].

The definition of G. Cook, according to which discourse is a “unity and interaction between text and context”, is also interesting and deserves attention [15]. This understanding has something in common with the one offered by N.D. Arutyunova, as the context in this case is understood in a broad sense and represents a combination of linguistic, extralinguistic and pragmatic parameters. Most vividly it can be demonstrated by the following formula: “Discourse = Text + Context (linguistic and extralinguistic)” [15].

Speaking about extralinguistic parameters, it is worth mentioning the discourse definition, given by V.V. Krasnykh, according to which it represents “an articulated verbal and cogitative activity, understood as a set of process and result an possessing both linguistic and extralinguistic parameters” [16, p. 84].

O.G. Revzina in her researches comes to conclusion that discourse is a substance “which has no accurate contour and is in continuous movement” [17, p. 66]. Thus, she considers

the main objective of linguistics to be the characterization of structure-forming parameters of discourse. According to O.G. Revzina, key parameters are:

1) discourse production and consumption (material substance of discourse is formed simultaneously by the contribution to it, and its consumption by each participant of language community; in other words, here it is a question of a set of an interactional discourse nature and its cognitive and linguistic basis);

2) communicative maintenance (this characteristic is directly connected with the information channels, which is an indispensable condition of discourse interactionality; it should be emphasized that the channel of communication, being one of the major factors defining discourse characteristics, represents the basis for a specific discourse systematization);

3) discursive formations (in other words, types of discourse; the essence of this parameter consists in a differentiation of the specified types of discourse “on certain grounds, which, in turn, are defined both by the aims of a linguistic research, and objectively allocated constituting features” [13, p. 17]);

4) intertextual interaction (it is based on a discourse types interpretation; this parameter is essential to our research as popular scientific discourse represents the result of such mutual penetrability, incorporating in itself the characteristics of various discursive formations) [13, p. 66–67].

Considering discourse as a many-sided phenomenon, it would be wrong not to pay attention to one more point of view concerning a better understanding of the essence of this phenomenon, offered by Yu. Kristeva. She understands discourse as an instrument by means of which some language materiality, where existence of one “voice” is possible only thanks to the existence of the other legitimate one, is created. According to Yu. Kristeva, “discourse is an element of practice, including ensemble of the unconscious, subjective, social relations, being in a state of fight, appropriation, destruction and creation” [18].

In general, the majority of the works directed at the discourse study, focuses on the critical review of various directions in the discourse analysis, and finding the place which discourse occupies from the point of view of speech activity, various functions and characteristics of discourse are investigated.

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Дискурс и различные подходы к его определению

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Ключевые слова и фразы: анализ речевых произведений; дискурс; дискурс-анализ; дискурсивные параметры; дискурсивные формации; интертекстуальное взаимодействие; когнитивная лингвистика; коммуникативный феномен; контекст; определение дискурса; психолингвистика; семиотика; социолингвистика; характеристики дискурса; экстралингвистические факторы.

Аннотация: Данная статья подробно рассматривает все разнообразие подходов к определению понятия «дискурс», охватывая широкий спектр различных дисциплин. Автор статьи наглядно показывает основные этапы развития теории дискурса, а также указывает на то, что наиболее точным является определение дискурса, инкорпорирующее все обозначенные точки зрения.

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Impact of Environmental Factors on Strategic Priorities of Education in Kondinskiy District of Khanty-Mansiysk Autonomous Okrug Yugra

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Key words and phrases: factors of external environment; north region; strategic priorities; system of education.

Abstract: The article elaborates upon the challenges related to selecting strategic priorities within educational policy of Kondinskiy district, Khanty-Mansiysky Autonomous Okrug Yugra. The paper examines educational strategic orientation based on the influence of external environmental factors, particularly of the northern regions.

The long-term education development plan in the district is based upon reasonable selection of strategic priorities, which define educational policy, target programmes and take into consideration unique features of the region. A strategic priority is a complex of activities that ensure the effective implementation of the strategy.

The topic of selecting strategic priorities has been considered in the studies of the following Russian scientists: Yu.I. Treshchevskoy, B.S. Bataeva, V.V. Okrepilova, N.A. Novitskiy, A.B. Tututkova, L.V. Gulyaeva and others. It should be noted, that the works of the above mentioned authors focused mainly on the priorities of long-term social and economic development, alongside the description of national economy sectors. Brief consideration of education policies in northern regions could be found in the works of A.N. Pilyasov, T.E. Dmitriev, O.V. Tolstoguzova, D.V. Gorodenko and others. Despite the fact that strategic priorities for education development in northern regions is of a great scientific interest, the present comprehensive analysis seems to be insufficient and scarce. Nowadays, northern regions act as the drivers of the Russian economy, which means that the reasonable education strategies provide basis for decent professional training of human resources and the provision of labour market with competent specialists.

The object of the research is Kondinskiy District of Khanty-Mansiysky Autonomous Okrug Yugra (**KhMAO-Yugra**), the subject of the research is long-term socio-economic framework of strategic planning in education. Problem-oriented analysis of the educational system was carried out as part of a municipal purpose-oriented programme "Education development plan in Kondinskiy District for 2012–2020". It should be mentioned that this municipal educational programme is built upon the key concepts of Endogenous Growth Theory, which started to gain widespread acceptance during postindustrial age. The theory is particularly concerned with endogenous/internal factors of the territory – historical background, specific geographical features, resources, national traditions, competences of the local population, states a main goal – to create comfortable environment and improve living conditions of people. We shall analyze current social and economic context of the Kondinskiy District, alongside the crucial

externalities, in order to delineate the strategic priorities in development of educational system.

Kondinskiy District (municipal district) is one of the nine Districts of KhMAO-Yugra situated in the south-west of KhMAO-Yugra, within the Kondinskaya plain. It constitutes the tenth part of the District's area. 27 residential areas including 5 urban and 5 rural settlements have been registered in the District since 2004.

The Demography in the District exhibits stability. Kondinskiy District is a low-populated municipal area. The population as of 2013 is 33,1 thousand people, with 1/3 living in rural areas. The population growth is not substantial. Children population under the age of 18 years old accounts for 25 % of the total population (8 506). The District showcases a tendency of annual 1 % decrease in population growth due to migration. The main reason of migration is the scarcity of the labor market. There has been registered an increase in retirement age population and decrease in labour force [1].

Due to historical background, the population is composed of 3 distinctive groups: indigenous people, exiles and people that started coming to Siberia in 1960s.

5537 ingenious people reside in the District – which amounts to 16 % of the total population, where 1408 are Khanty people, 4 194 Mansi people, 25 Nentsy people, 1 847 of them are children (800 live in rural areas). Indigenous people reside mainly in large villages, where they engage in traditional activities such as fishing, hunting, harvesting wild berries and medical plants. Employment is the main challenge for indigenous tribes. Only 30 people are engaged in the above mentioned traditional activities, 1 835 people are employed, 735 are unemployed, 2896 people are able to work. There are 41 kinship lands, however traditional activities are almost not carried out there. This situation exhibits a range of urgent problems in terms of education and forces educational institutions to create conditions suitable for traditional lifestyle of indigenous people [3]. In 1930–1940s descendants of “kulaks” (affluent farmers in the later Russian Empire) were exiled to the region. Due to the historical circumstances, these people proved to be enterprising, politicized, and had excellent self-organization skills. The third group is made up of people who came to Siberia with a “young communist permit” that supported them in the intention to engage with the industry of oil fields exploration and logging industry.

The combination of the above described population groups is a trademark of each residential area in the District, that creates competences, preserves traditions, and either promotes territorial development or hinders acceptance of new ideas, including the sphere of education.

The geography of the district is characterized by a number of particular features which affect education advancement. In summer time the majority of communities could be reached mainly by water transportation, in winter by winter roads, during transitional seasons communication is facilitated by motor vehicles, the means of transportation rarely affordable to the majority of people. The absence of transport infrastructure is conditioned by the challenging landscape and high costs of road construction (97,8 % of the area is covered by forests, swamps, rivers and lakes; swamps occupy 46,2 % of the territory). The climate of the district is extreme continental with severe winters and short summers (climate typical of northern regions).

Environmental condition is another important aspect to be considered. One of the largest rivers of KhMAO-Yugra – the River Konda that flows across the region and provides water supply for all the communities, shows deviation by the range of chemical components (chemical imbalance). The iron content in the river exceeds the admissible concentration by 30-40 times, copper by 10–20 times. Raw hydrocarbon deposits are located within the river basin – contamination of water by crude oil and petroleum products exceeds the acceptable limit from 3 to 20 times. In general, the condition of the river could be characterized as unfavorable; the

water is referred to as “unclean”, “contaminated”. Air pollution is caused predominantly by the emission of harmful substance from housing and public utilities and transport. The air contains carbon dioxide (53,5 %), nitrogenoxide (17,1 %), sulfurdioxide (8,4 %) [4].

Disadvantaged environment influence the morbidity rate of the District. The major factor that influences human health is so to speak chemical imbalance: air, soil and water pollution. The recent data reveals positive changes in the morbidity rate for children (infectious and parasitic deceases, endocrine deceases, deceases of the respiratory system, gastrointestinal deceases) [5].

When analyzing the economy of the District, it should be taken into account that its economic development started to gain competitive advantage in 1930s, reaching intensive development in 50–60s – with advancement of forest industry, agricultural sector and oil producing industry.

Agricultural sector is one of the key sectors of the District's economy. Agricultural area covers 8 565 hectares. Dairy cattle breeding, swine breeding, fur-farming are among common types of animal husbandry. There are schemes for silver fox breeding that during the recent years have been a subject to a 10 fold decrease of seed stock. Production of agricultural products, fishing, wild berry harvesting are the only sources of profit for the majority of local population. Low level of agricultural development is caused by overall equipment deterioration, lack of trained human resources, the fact that careers and occupations in agriculture are stereotyped as not prestigious, low salaries, unstable market, high risks rate, etc. Fishing industry is also of a great importance for the District's economy. It is proved by the fact that water bodies produce fish at high rates – up to 3 000 tons of fish and (with no appreciable damage to fish fauna). Fish production capacity is 1 000 tons per year, less than the actual capacity of water bodies.

As for the lumber industry, it is worth noting that in 2009–2010 major lumber companies went bankrupt and were reorganized later into smaller firms. Wood volume production reduced three times.

In general, the priority vector of economic development in the Kondinskiy district necessitates modernization of equipment, innovative technology solutions for forest, fishery and agricultural enterprises which could ensure economic wellbeing and competitiveness of the region. Educational system is significant for economic development due to the fact that general education shapes conscious choices of careers and occupation demanded by the regional economy, provides the basic training of future human resources.

Summing up the results, the following could be stated: the external factors create a specific context of educational system. Consideration of the above mentioned current external factors provide us with a clear understanding of educational priorities.

Within traditional paradigm of strategic educational priorities in Kondinskiy district, apart from the obligatory ones such as quality and accessibility of education, the following priorities should be outlined: first of all, health protection and promotion of healthy life style among teachers, pupils/students due to disadvantaged environment of the District; encouraging general interest towards traditional segments of economy (logging, agriculture), that could result in smaller businesses development; conservation of indigenous traditions, promotion of local arts and crafts as the region's brand; creating a self-developing education system that focuses on social demands and considers specific geographical features of northern regions.

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Влияние факторов внешней среды на стратегические приоритеты системы образования Кондинского района Ханты-Мансийского автономного округа – Югры

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Ключевые слова и фразы: северный регион; система образования; стратегические приоритеты; факторы внешней среды.

Аннотация: В статье рассматривается проблема выбора приоритетов в стратегии развития системы образования Кондинского района Ханты-Мансийского автономного округа – Югры. Исследованы варианты стратегических ориентиров системы образования муниципального района с учетом региональных факторов внешней среды северной территории.

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Urban Development Factors in Siting Multi-Purpose Health Centers in Angola

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Key words and phrases: accommodation; basic requirements in the design of multi-purpose health centers (**MPHC**); climatic factors; design of medical facilities.

Abstract: The purpose was to study urban factors affecting the architecture of medical facilities in Angola. The studies were conducted using the method of systematic structural approach enabling to consider the basic characteristics of the object of the study. This method enables to simulate multi-purpose health center (**MPHC**) as a complex, dynamic relatively open system and distinguish it from the surrounding systems, determine its urban functions.

The basic principles of urban architecture of MPHC, as well as their application in the process of architectural modernization have been examined.

Recently, there have been considerable improvements in socio-economic situation in Angola, which resulted in the need for optimization of multi-purpose health centers and hospitals in order to improve the quality of medical care. In Angola, to date there are many unresolved issues in the field of construction and placement of healthcare facilities.

Siting of multi-purpose health centers in suburban areas of Angola will depend on local environmental conditions, the degree and direction of the harmful effects of industrial zones of the city (Table 1).

Table 1. Factors predetermining design solutions of healthcare centers and hospitals

Environmental and climatic factors	Anthropogenic factors
Functional factors	Climatic factors
Functional planning of the city zoning, street and road network, transport infrastructure, external transport, engineering infrastructure, technical equipment, functional and technological impact, the system of gardening and landscaping	Air temperature, rainfall, humidity, wind speed, wind direction, barometric pressure, solar radiation, ultraviolet radiation, microclimatic features
Socio-economic factors	Environmental factors
Social status of the population, the level of financial security, population, urban density, level and forms of employment, demographics, ethnic composition	Topography, soils, geology, seismic, hydrological features, flora, fauna, position above sea level, the possibility of natural disasters

When deciding on the placement of medical facilities designers must take into account all the important natural factors that Angola possesses. Also they must include measures to protect the buildings and the neighborhood from adverse external factors. Climatic data should become an important factor in determining the periods of operation of facilities; the character of the landscape must influence the space-planning decisions of recreation areas. Designing hospitals is a complex process, where it is necessary to consider many factors and conditions.

General plan of MPHC is recommended to develop as a structural document defining territorial development of the perspective settlement, the creation of engineering infrastructure and communication framework, placement of the main attraction centers, forming a system of open spaces on the basis of natural resource assessment and development forecast given the set of factors.

In the course of designing one should consider a modern approach to general plans, i.e. the need to consider the probabilistic nature of the change, the desire for greater flexibility and variance of the development forecast of the settlement in the future, rather than its final state.

It is necessary to investigate the development of architecture of new buildings and complexes of hospitals, taking into account modern architectural spatial planning solutions. Knowledge of demographic parameters contributes to the effective integration of the needs of the population when placing new or adjusting medical institutions. One of the important features when choosing a place of healthcare center is to apply a broad approach to the problems of urban recreation in general, and the development of park areas throughout the hospital, in particular. New therapeutic and prophylactic, pharmaceutical and other medical facilities are recommended to place in accordance with the approved general plans of residential places and detailed planning projects, as well as in accordance with the development of specific regions of the network based on industry development schemes.

Another important requirement that should be considered in the design of hospitals is that under extreme conditions (natural and man-made disasters) the medical facility must be fully functional.

The territory of multi hospital is advisable to equip with a fence, a checkpoint guard and guest parking. Hospitals are advisable to place not far from the new districts to facilitate fast service of residents. The routes in the neighborhood should be implemented on a specially projected automotive junction, especially on a paved road. All roads must be paved. Along the highway, on either side, as well as along the newly paved road the green zone with a minimum width of 1.6 meters must be laid.

The form and nature the terrain affect the density and compactness of the planning structure. Angola has a flat territory and mountainous terrain. The more deviations the terrain has, the more compact should be a hospital. When placing objects on the slope it is necessary to increase the volume of retaining structures, underground and semi-underground use of space.

The characteristics of the local orientation and microclimate are important under detailed planning districts, especially when selecting sites for construction for multi-purpose health institutions. Located on a plot of the multi-purpose health center, freestanding buildings of polyclinics, ambulance stations and emergency care centers must be isolated from the main hospital with convenient access for visitors and hospital staff.

The main objective of long-term placement of a medical object includes reservation of territories, the development of measures for landscaping, and the approval of sanitary protection zones.

The systematic use of areas for recreation and treatment is important as a measure for the protection of nature.

In Angola, the choice of the mutual arrangement of the various areas of hospital facilities should take into account the specific requirements of each of them to sanitation and quality construction sites. Particular attention should be paid to the mutual placement of residential areas and medical institutions, in particular infectious disease hospitals. On the one hand, their distance increases the time spent on the journey to work, and on the other hand, it causes harmful effects and leads to the spread of diseases, and in some cases it even requires the organization of sanitary protection zones between medical facilities and residential areas.

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Градостроительные факторы выбора места строительства многопрофильных клинических больниц в Анголе

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Ключевые слова и фразы: климатические факторы; проектирование медицинских объектов; размещение; основные требования при проектировании многопрофильных клинических больниц (МПКБ).

Аннотация: Цель работы заключалась в исследовании градостроительных факторов, влияющих на архитектуру медицинских объектов Анголы.

Исследования проводились с применением метода системно-структурного подхода, позволяющего рассмотреть основные характеристики объекта исследования. Данный метод позволяет моделировать МПКБ как сложную, относительно открытую динамическую систему, выделить ее среди окружающих систем, детерминировать ее градостроительные функции.

Выявлены основные градостроительные принципы архитектуры МПКБ, а также их применение в процессе архитектурной модернизации.

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Social Development of Man and Society as Goal and Result of New Industrialization

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Key words and phrases: consumption; labor; social development of man; use value.

Abstract: This article demonstrates that the main purpose of socio-economic development of the society, from the standpoint of consumption-value approach, is man and his consumption which is regarded as an element of production of the society, social life and social development of man.

In recent years, the world community has been much involved in the discussions about the beginning of new industrialization. The very concept of industrialization can be traced back to the Middle Ages: “industria” at that time meant devotion to work. It was later when it acquired the modern meaning – “industry”. New industria is the new industry based on the new technologies, and hence, on the scientific and technological progress, which is based entirely on advanced educated human personality.

Human labor is the basis of social life. To live and develop, people must meet their survival needs: eat, get dressed, have a shelter (accommodation), etc. To do this, the society must continuously develop the appropriate material resources and benefits which cannot be created without human effort.

Labor as the originator of consumption-values is the condition of human existence, which is “independent of all social forms, the eternal natural necessity: without it, no exchange between man and nature would be possible, that is, human life itself would not have been possible at all” [1, p. 51]. Thus, labor has always been and still remains the basis and the decisive factor of the entire human life. Only by work and by means of labor human needs are satisfied, the national wealth is created, man and society in general are formed and further developed. The nature of the work, its impact on both social development and human development are not the same in different historical circumstances. Depending on the social and economic conditions in which labor is used, it can be either a burden or a source of creativity and even inspiration. All that is necessary for life and development of man is created by means of labor.

Recently, as a result of the economic reforms that are being carried out in our country, the attitude toward work in the society has changed, which entailed certain social, negative consequences. Work has evolved from a factor of success in life and embodiment of human capabilities in a survival factor. Interest to working for manufacturing decreased, conditions and culture of labor have worsened, quality of the labor potential also deteriorated (there are no highly skilled workers); also degree of availability of free education, healthcare, culture has decreased, and, as a result we can see the decline of morality and ethics which thus occurred.

The essence of the concept “human development” is related to satisfaction of the human needs, consumption and labor costs. In the Human Development Report for 1990, the term “human development” was defined as “the process of expanding human choices and the achieved welfare level”. The concept of choice includes various aspects of human life (longevity,

education, income, consumption, environment, etc.), the importance of which may vary over time. The UNDP (United Nations Development Programme) report in 2010 has made significant addition to the interpretation of the “human development” term. “Human development, the Report declares, is the process of expanding the mankind’s freedom to live a long, healthy and creative life, to enjoy other things in life, which it has the reason to value, to participate actively in ensuring total justice and sustainable development of the planet”.

Expanding the range of human choice, according to the Report, remains the fundamental thing, but this is now no longer enough. Many other factors have also been introduced. Human development also involves mankind’s prosperity (satisfaction and expansion of needs), creative life allowing to achieve the goals that have specific value in terms of each individual. Positive results should also be stable and persist over time. There must be social justice and successful fighting against poverty and beggary, as well as opposition to the conditions leading to the impoverishment of the diverse groups of population. In this context, human development is directly related to expansion of the boundaries of the consumption process.

Consumption has been proposed to be considered in terms of understanding it as an element of production of society, social life and human rights. Consumption implements the project of use of the product, embodied therein, which is created in the previous phases – primarily during production. The economy usually maintains division of production processes into phases (production, distribution, exchange). Thus, economists have put consumption in line with production and distribution, depriving it of its socioeconomic content. That is why consumption, from this point of view, is not an economic or social relationship, because it represents the subject’s attitude to things, and people’s attitudes to each other in this case are not taken into account. In this case, it turns out that the whole area of human relations is beyond the scope of analysis, as consumption is understood as the target of production, and the target attitudes or subjective preferences may not be included in the system of economic relationship.

Inclusion of consumption in public relations system can be based on its understanding as production and reproduction of humans. Then, on the one hand, the purpose of production will acquire a definite form – the form of realization of man and his needs, and on the other hand – the relationship of consumption will find themselves in one of the forms of people’s attitudes about their own reproduction as subjects. Production and consumption will not be divided into the two objects of different sciences, and will become the two opposing forms of the same entity. And consumption will become a continuation of social production and relations of production, and will be extended to the sphere of consumers’ production, i.e. the limitations of single-pole division of social production will be overcome [2, p. 250].

In this sense, consumption and the term “*consumption production*” was first introduced by K. Marx. In the introduction to “Critique of Political Economy” he characterizes consumption as the activity that destroys the product of material production, as the opposite thereof, as the second type of production – the consumption production which produces and reproduces man himself.

Thus, the consumption production includes not only reproduction of human life, but also social production. Consumption production is understood as an aggregate of processes by means of which the social content of life, social definitions of human rights are produced and reproduced.

Usually, in the socio-economic literature, the formation and development of man and society is associated with the productive labor: it is considered a consequence of the evolution of labor, its essence, technological changes and innovative reforms in the sphere of production. While consumption is represented in the form of reproduction of the labor force, on the basis of production costs of its means of subsistence, their cost, invested in the variable, “human”, capital.

Welfare of an individual, however, cannot be measured only by money (wages). Although income is quite essential (no resources – any progress would be hard to achieve) and it is impossible to ignore the importance of income for human development. Income provides a man with satisfaction of his consumption needs in food, shelter, and clothing. But, for human development, there are other important needs necessary: employment in a decent job – generating financial and moral satisfaction, free time for intellectual and cultural development, socializing with friends and family, etc.

The significance of the means of subsistence in the human consumption is determined not by their value and, accordingly, by labor involved in their production, but by their consumption value, i.e. to the extent they restore vitality of man. Valuation is not always adequately expressing the occurring economic processes. This is especially true when it comes to man. It is possible to estimate his living standards by minimum wages, pensions, benefits, income, etc. However, this cannot say anything about the actual financial status of people, as we take into account the “consumer goods basket”, estimated in rubles rather than by actual consumption value. In other words, turning the economy “to a man” can be done by introduction of consumption value as the goal and criteria of consumption value, understood as “the totality of benefits” for humans. Such change in the economic policy goals should occur at regional, governmental, international level, which will allow solving the problems of poverty, environmental conservation and survival of society in the future more effectively.

The world’s community has long ago usually regarded economic growth not as an end in itself, but only as an investment in humans, as a tool to achieve more humane strategic goals of social development, in which social development, suggesting increase in capacity to meet the diverse needs (physical, intellectual, spiritual, etc.) of different population groups and each person, has become the priority.

It is generally accepted that the standard of living cannot be measured only from the standpoint of economic indicators. Today, the human factor as a source of economic growth is given great importance. In this regard, one should not underestimate the role of education, health, science, culture and other parameters of non-production sphere. In our country, “human factor” has not found its commendable place in the system of social organization yet.

Proper assessment of the social factors allows achieving their relevant use in the development of the competitiveness of economy. In the developed countries (such as Sweden and Germany), a lot of attention is paid to the social issues of social development, and the volume of investment in human development programs is comparable with the volume of financial bunching.

Social development is directly connected with production of the material goods (means of subsistence) satisfying the growing needs of society as a whole and of each individual separately, so it should not be regarded as something derived from the nature of its economic development. Only interaction of the social and economic spheres will allow meeting the peoples’ needs and supporting their economic activity.

Thus, consumption for society has enormous social significance. First, material consumption necessitates involvement of every person in social life, and, secondly, it reproduces the social structure as the basis of type of social life and various lifestyles. As man is involved in social production while having a certain social status, material consumption in the process of production thus reproduces his social status. Third, material consumption, its structure (i.e., what a person eats, drinks, in what conditions he lives, etc.), consumption culture and the level of using functionality of the product, etc. reproduces the material conditions of life (household, health, material preconditions of public, social and cultural development, demographic behavior, etc.). Fourth, spiritual consumption is involved in formation of the world

outlook, values, ideals, and attitudes of people. Such a value for human consumption and society allows us to call it the consumption production [3, p. 24–27].

It must be noted that J. Schumpeter showed that the cost paradigm has been and remains the theory that explains only a static, stationary, and not the dynamic flow of the economic processes. He believed that the theory of stationary process actually forms the basis of the entire economic theory, and thus its cannot explain much about the causes and ways of the economic development [4, p. 53]. Theory of cost is unable to explain the economic development and innovation, as the value produced, according to its law, cannot exceed the cost of production thereof and, therefore, cannot satisfy the basic condition of economic development – the emergence of the new superceding the old. In cost production it is impossible at all to achieve any result elevation value exceeding the cost of expenses, as he believed, there is not a single product that would be able to provide any sound excess, over its value, of the cost of labor and effort contributed thereto” [4, p. 93]. Another economic concept is the theory of marginal utility, which has not overcome the static nature of value theory, repeatedly noted by L. Valras, that his theory only suits the stationary process.

In the activity of consumption a thing, a benefit, a product of labor appears to man to be a consumption value. Consumption value, as it is known, is primarily a subject with which man can deal and get concerned about in the course of reproduction of his life. He uses it to meet their needs, and that the usefulness of the subject makes the latter to be a consumption value, which realizes itself in the process of consumption. Consumption value has important socioeconomic function. Indeed, consumption value is intended to serve not an individual, but lots of people, i.e. it can be defined as a public utility value, implying exchange of consumption values between people. Public nature follows from the corresponding characteristics of labor as a source of consumer value, having certain social nature. If we talk about the abstract aspect of labor, the labor that produces consumption value, is of double nature: on the one hand, obviously, its division into the types varying by quality and unable to be reduced to one another in accordance with the likewise qualitatively different needs of people, also unable to be reduced to one another; on the other hand, this is labor realized in certain final public result, which has its homogeneity expressed in quantitative determination [5, p. 31].

Labor costs, producing the cost can be reduced to a single, identical amount of the labor expended. This can be done with respect to the results of labor, constituting consumption value components. Labor saving is also a result thereof, giving to the mankind release of certain amount of labor, whereby the society gets time free from material production that can be spent on some other activities.

This result is also a consumption value, but it has no direct relationship to the cost of labor as the source of the product, to the subject of human activity. But it (the result), primarily, is intended for humans, providing their existence and development. Its purpose is to serve man, his needs. It is how it manifests its utility and value. “Individual, implementing himself in a product and possessing it, makes certain development. This is human development (and, along with it, of the society), associated with consumption production and product division by subjects, which in every epoch has its own certain level “[5, p. 32].

Consumption value as one of the basic factors of production can be estimated through measurement of the productivity of labor (labor productivity) [6, p. 115–125], and likewise consumption value and means of subsistence can be estimated as well [7, p. 264–276].

Product in terms of consumption value can be characterized in a certain way through the aggregate demand for this product of consumers making exchange of consumption values, i.e., the total volume of consumption. In this case, aggregate consumption is a measure of the product as consumption value.

The following can serve as accepted measure of exchange of goods: direct working time established under the terms of consumption; labor inputs; released saved labor; saved time [5, p.33–35]. People should know how much they should work hard to get certain welfare and development; man should not overwork for the sake of the others' consumption. This problem is solved on the basis of the law on consumption value.

Let us note that this consumption-value of an employee's means of subsistence determines the time and labor costs involved to produce them.

Thus, the main criterion for socio-economic development in terms of consumption value approach is reduction of the working time as a result of innovation (technological progress), which leads to increase in the wealth of society and saving of free time. The latter is transformed into a measure of human development as the basic wealth of the society, and thus becomes a measure of development of the society's ability to measure consumption rate or consumption power of the society.

This corresponds to the requirements of the law of consumption value, according to which the time released as a result of consumption value (free time) exceeds the time spent on work, and, hence, the consumption during such time also must be measured by it. On the other hand, if the working time is taken as the measure, such consumption is the indicator of the society's poverty. Working time, including extra work time, absorbs all the time of employees, thereby depriving them of their free time. In this case, it becomes free time for those few who thus acquire space for their own development, and also – for consumption.

Thus, improving the efficiency of the material production aims to support human life and meet the ever growing needs of the society with less labor, time and resources involved. As a result, this creates real opportunities for increasing free time range – which is the main wealth of human society. Increase of free time range, in turn, promotes comprehensive development of the personality, actively influence efficiency of labor activity in material production, and further reduction of time required to be spent in this sphere.

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Социальное развитие человека и общества как цель и результат новой индустриализации

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Ключевые слова и фразы: потребительная стоимость; потребление; социальное развитие человека; труд.

Аннотация: В статье показано, что основной целью социально-экономического развития общества с точки зрения потребительно-стоимостного подхода, является человек и его потребление, которое рассматривается как элемент производства общества, социальной жизни и социального развития человека.

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Methodology of Wall Parameters Assessment during Indoor Propagation

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*Voronezh Institute of High Technologies, Voronezh (Russia)***Key words and phrases:** attenuation; indoor; propagation.

Abstract: The paper analyzes the basic methods for assessing the propagation of electromagnetic waves. Experimental studies were conducted to assess the attenuation of electromagnetic waves of wireless communication systems for different conditions. Mathematical model was developed for performance evaluation of materials characterizing signal attenuation; the data obtained experimentally for theoretical calculations was used.

In the study of wave propagation for closed spaces a very large number of rays are observed. The reason for this is that there is a lot of reflections from the various obstacles (tables, chairs, ceiling, floor, walls, etc.). As a result, you can get very complicated picture for the resulting field distribution.

It is interesting to assess the values of the signal intensity rather than make exact computations. It is very difficult to obtain accurate values due to the failure of the accounting effects of fine attenuation, and because it does not take into account the internal filling space.

Proceeding from the above, the aim of this work is to determine a methodology for rapid assessment of signal intensity for the observation point, which is located at a certain distance from the source. Between the source and the receiver there is a number of obstacles, which have different coefficients of damping. At the same time the coarse attenuation value depends on the distance, the transmitter location and the frequency of the signal. When the attenuation of the signal is measured in decibels it can be expressed in the ratio:

$$L \approx 20X \lg \left(\frac{4\pi df}{c} \right), \quad (1)$$

wherein X is attenuation factor, l equals 1 for an open space, d is the distance from the transfer point, f is the frequency of the signal, c is the velocity of light. With the increasing frequency the attenuation of the transmitted useful signal increases.

In the experiment, the following options are taken into account:

- a plaster wall is between the transmitter and the receiver in the wireless communication channel, but the position of the receiver can be changed;
- one barrier and gypsum wood cabinet are between the transmitter and receiver in a wireless communication channel;
- two brick walls and plaster one wall, as well as the wooden cabinet are between the transmitter and receiver in a wireless communication channel.

Having received measurement data from the experiment we can proceed to comparisons and calculations of theoretical and experimental data.

Table 1. Baseline experiment

Types of barriers	angle of incidence	signal level
1 plaster wall	0°	99 %
1 plaster wall	45°	≈ 86–88 %
1 plaster wall	30°	90 %
1 plaster wall +wood cabinet	0°	85%
2 plaster wall + 1 brick wall	60°	60 %
2 plaster wall + 1 brick wall	0°	55 %

If one neglects in a first approximation, that the wave plate has reflections within the interfaces, then the total attenuation point O_2 is written as follows.

As a result, the attenuations L_{H1} , L_{T1} , L_{H2} can be determined as follows:

$$L = L_{H1} + L_{o1} + L_{T1} + L_{O2} + L_{H2}, \tag{2}$$

where L_{H1} is attenuation, which is determined by the spread of the signal portion of open space $H1$; L_{o1} is attenuation determined by what the reflection of the wave from the boundary separating the two media; L_{T1} is attenuation, which is determined by the passage wall section, in which the length of $T1$; L_{o2} is attenuation determined by the reflection of the wave from the boundary separating the two media; L_{H2} is attenuation determined by signal propagation in open space H_2 .

Fig. 1 shows the geometrical diagram showing the distribution of electromagnetic wave in the propagation of Wi-Fi signal through an obstacle.

As a result, the damping L_{H1} , L_{T1} , L_{H2} can be determined as follows:

$$L_{H1} = 20 \lg \left(\frac{4\pi H_1 f}{c} \right), \tag{3}$$

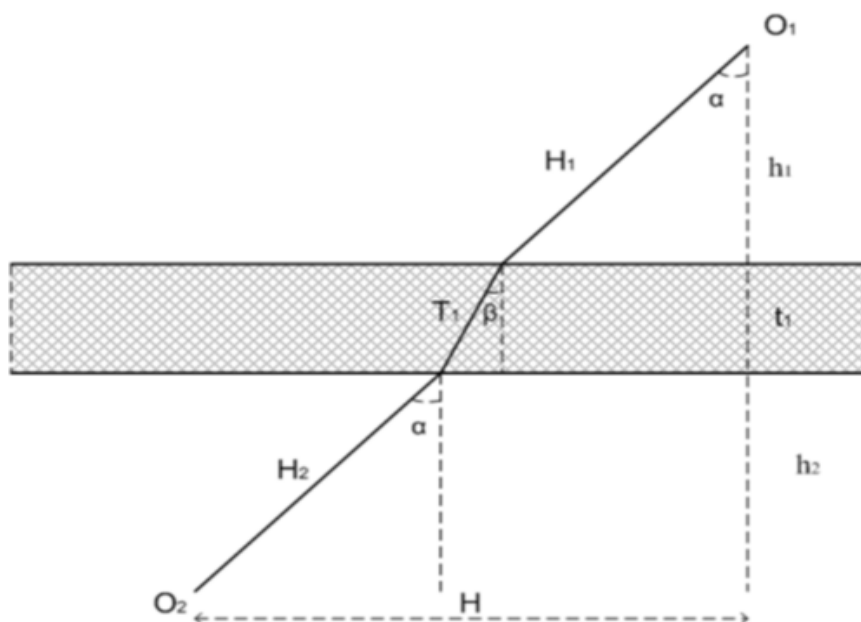


Fig. 1. Distribution of Wi-Fi signal through an obstacle

$$L_{T1} = 20K \lg \left(\frac{4\pi T_1 f}{c} \right), \quad (4)$$

$$L_{H2} = 20 \lg \left(\frac{4\pi H_2 f}{C} \right). \quad (5)$$

For most antennas, which are used in WLAN, linear horizontal or vertical polarization is typical. Vertical polarization is used quite often. Thus, based on the fact that there is vertical polarization wave, the attenuation L_{o1} and L_{o2} caused by the reflection of the wave from the boundary of two media will be calculated as follows:

$$L_{o1} = 10 \lg \left(\frac{P}{P_{np}} \right) = 10 \lg \left(\frac{4n_1 n_2 \cos \alpha \cos \beta}{(n_2 \cos \alpha + n_1 \cos \beta)^2} \right), \quad (6)$$

$$L_{o2} = 10 \lg \left(\frac{P}{P_{np}} \right) = 10 \lg \left(\frac{(4n_1 n_2 \cos \alpha \cos \beta)}{(n_1 \cos \alpha + n_2 \cos \beta)^2} \right), \quad (7)$$

where P and P_{np} are the power of the signal passed before the reflection from the boundary of two media and the power of the signal after it passed the boundary of two obstacles; n_1 and n_2 are refractive indices for the medium 1 and medium 2.

As a result, the total attenuation of the signal during the process of propagation from the transmitter to the receiver is calculated by the formula:

$$L = 20 \lg \left(\left(\frac{4\pi f}{c} \right)^2 H_1 H_2 \right) + 20K_m \lg \left(\frac{4\pi T_1 f}{c} \right) + 10 \lg \left(\frac{(4n_1 n_2 \cos \alpha \cos \beta)^2}{((n_2 \cos \alpha + n_1 \cos \beta)(n_1 \cos \alpha + n_2 \cos \beta))^2} \right). \quad (8)$$

For the frequency range 3–5 GHz for the real part of dielectric permittivity of brick and concrete a small change is characteristic, and it is $\epsilon = 3.5\text{--}4.0$, in this regard, in the calculations we can assume $n_1 = 1$ (air), $n_2 = 1.9\text{--}2$ (for walls).

Having received the experimental data, we can choose the parameters of the refractive index in different environments. Calculations showed that the error in determination of the material parameters does not exceed 5 %.

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Методика оценки параметров стен при распространении радиоволн внутри помещений

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Ключевые слова и фразы: внутри помещения; затухание; распространение.

Аннотация: В статье анализируются основные методы оценки распространения электромагнитных волн. Были проведены экспериментальные исследования для оценки ослабления электромагнитных волн беспроводных систем связи для различных условий. Была разработана математическая модель оценки материалов производительности, характеризующие затухание сигнала. Данные, полученные экспериментально, были использовали для теоретических расчетов.

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Special Methods Make it Possible to Diagnose and Treat Stomach Cancer

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Key words and phrases: cancerous points; early diagnostics of stomach cancer; electrophysiological methods; information field; magnetic fields; plant cytostatics; special methods; treatment of stomach cancer.

Abstract: The paper describes the method of stomach cancer treatment by using “cancerous points” accompanied by fibrogastroscopy with the biopsy and histological studies.

For ten years now we have applied early diagnostics of cancer electrophysiologically and with the use of the information field on the basis of discovered by us “cancerous points” (patents of Austria, Europe, USA, and Ukraine, 2003–2012). Diagnostics of stomach cancer is accompanied by fibrogastroscopy with the biopsy and histological studies. We prescribe gepatofil (gepatoprotector) and pankreofil (proteolysis inhibitor) for three weeks. We determine the dynamics of the disease flow according to 7 levels of the patient’s information field. We obtain additional information by the usual X-ray examination, the dual contrasting, etc. The degree of the propagation of tumor is specified with the aid of USI, computed tomography or a magnetic-resonance study and by the measurement of the patient’s information field (we trace its decrease to level 4 and lower). Parallel to it we reveal thickenings of the stomach wall with the aid of a computer tomography or a magnetic-resonance study.

We examined 3500 patients (2006–2010). Cancer pathology was revealed in 716 cases, stomach cancer, including low-differentiate, was diagnosed in 448 cases. Dispensary examination revealed stomach cancer in 357 cases. 130 patients were operated on, the rest were submitted to chemotherapy. In accordance with the conventional recommendations, we monitor clinical data of macro – and microscopic changes in the stomach and of patients with the atrophy, intestinal metaplasia and dysplasia 1 time in 6 months during 3 years. We simultaneously analyze the biochemical and immunological indices of blood; we carry out electropuncture diagnostics with the aid of the apparatus of INTA-mini (state registration 14.07.2000).

We treat stomach cancer using chemotherapy with plant cytostatics (cytofil 4 and cytofil 13). To increase the effectiveness of the immune system it is necessary to put into the body an additional agent, which changes Coulomb interaction of cells and tears away antigens from their surface, while for the effective penetration of cytostatics into the tumor cells it is necessary to change permeability and electrical conductivity of cellular membranes. These problems are solved with the aid of the vortex magnetic fields (apparatus of magnetic therapy “Vitma”, 2006) and the frequency-resonance electromagnetic therapy (apparatus “Akutest”, 2008). We use cancerous frequencies of 22, 100, 410, and 10 000 Hz.

The proposed version of the stomach cancer treatment leads to reliable reduction in the chronic inflammation, and it also contributes to 34,3 % regress of atrophy, to 57,1 % regress of

intestinal metaplasia (to heaviest degree). A reliable decrease of the proliferation and apoptosis indices in the mucous membrane of the stomach is also detected.

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Специальные методы диагностики и лечения рака желудка

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Ключевые слова и фразы: информационное поле; магнитные поля; лечение рака желудка; ранняя диагностика рака желудка; растительные цитостатические средства; специальный метод «раковых точек»; электрофизиологические методы.

Аннотация: В статье описывается метод лечения рака желудка с помощью методики «раковых точек» в комплексе с фиброгастроскопией, биопсией и гистологическими исследованиями.

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On Self-Dependent Antitumor Activity of Magnetite Nanoparticles in the Experiments *in vivo*

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Key words and phrases: antitumor activity; magnetite nanoparticles; transplantable tumors.

Abstract: Application of ferrimagnetic nanoparticles in antitumor treatment is briefly discussed. An experiment using the methods of light and electron microscopy is described.

At present ferrimagnetic nanoparticles (**NP**) are used in antitumor treatment for targeted drug delivery or as factors of magnetic fluid hyperthermia. The question about self-dependent antitumor activity of such NP is almost not studied.

The self-dependent antitumor activity of magnetite NP (Fe_3O_4) was for the first time shown in the experiments on 258 white outbred rats (200–300 g) *transplantable* tumor, *sarcoma 45* and *Pliss lymphosarcoma*.

Tumors were transplanted subcutaneously into the region of the rear side of the back. Before the start of treatment course experiment the tumor volume of *sarcoma 45* reached 0.7–1.3 cm³, the tumor volume of *Pliss lymphosarcoma* reached 0.3–2.7 cm³. The ferrofluid based on magnetite NP (10 ± 2 nm) was injected into the area adjacent to the tumor at a distance of 1.5 cm from the tumor borders twice a week, 5–6 times in total. The dose of magnetite NP varied in different experiments. The dynamics of the tumor volume, changes in the tumor and adjacent tissues, as well as in the organs of the immune system, the quantity of NP in the liver, in the kidneys, and in the lungs were studied. The methods of light and electron microscopy as well as flow cytometry and X-ray absorption spectroscopy analysis were used. The Student's t-test and the Wilcoxon signed-rank test were used for the statistical analysis.

For the rats with *sarcoma 45* the maximum effect of magnetite NP was expressed in tumor regression in 70 % of animals, including complete tumor regression in 43 % of cases. For the rats with the *Pliss lymphosarcoma* the maximum effect of magnetite NP was expressed in the tumor regression in 50 % of animals, in these cases complete tumor regression was noted in 40 % of animals including the rats whose tumor volume before the start of treatment course exceeded 2,5 cm³. The cases of the complete tumor regression were confirmed histologically, and also by monitoring the animals' state in the course of 8 months. The activation of system and local immune processes (increase of the limfoproliferative activity in the thymus and the spleen, the infiltration of the tumor tissue by immune cells and the appearance of morphological

signs of different intercellular interactions, $p < 0.05-0.01$) was observed under the effective influence of magnetite NP. Toxic reactions were not noted.

We have examined the possible mechanisms, connected with the processes in the perifocal zone of the tumors, which can determine the self-dependent antitumor activity of magnetite NP.

**О самостоятельной противоопухолевой активности магнитных наночастиц
в условиях естественного эксперимента**

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Ключевые слова и фразы: магнитные наночастицы; пересадка опухоли; противоопухолевая активность.

Аннотация: Рассмотрена возможность применения ферромагнитных наночастиц в противоопухолевом лечении. Описан эксперимент с применением методов световой и электронной микроскопии.

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UDK 94

The History of Mobile Phones

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Key words and phrases: cell phone; cellular communications; history; transmission of sound over a distance.

Abstract: This paper examines the history of creation of a cell phone; the main stages in the development of mobile communication have been discussed.

Currently, cellular phones are the most common of all types of mobile communication. A mobile phone is usually referred to as a cell phone, although mobile phones are also satellite phones, cordless phones and trunking devices. The cell Phone is a mobile phone designed to work in cellular networks; it uses radiofrequency transceiver and traditional telephone switching for telephone communication within the zone of cellular network coverage.

Most mobile communication standards are used for identification of the SIM-card. It is a smart card (plastic card with a microcontroller and memory pressed into its chip) with program management, and also has its own unique identification number IMSI (International Mobile Subscriber Identity – International Mobile Subscriber Identification Number) and individual numeric password.

In today's world, in contrast to the time when the first mobile phone appeared, mobile communication has become an integral part of our lives. Today, the phone is not just a device that can transmit sound over a distance. Rather, it is a machine with a greater capacity than that of a telephone. Coverage allows the operator to use the link in almost all over the world.

Nathan Stubblefield was a fairly well-known name in the circles of the inventors in the late 19th century. Throughout his life he was committed to the study of electricity and transmission in the distance. In the 1880s Stubblefield also claimed for the invention of radio. The first cell phone designed by this American farmer was quite cumbersome (the size of a manhole).

To use this device Stubblefield found in his garden a huge mast of 35 meters long. The first wireless session was held by Stubblefield on board the ship in 1902. Witnesses, who were on board the ship, confirmed the absence of any wires and recorded voice in the distance. However, documentary evidence of this experiment has not been found so far. Perhaps, the invention of Stubblefield was not appreciated at that time and people thought that it was an illusion, or perhaps because such an experiment never existed.

The idea of creating wireless mobile devices appeared when scientists developed a normal landline phone. Back in 1947 Bell Laboratories, which were owned by the AT & T Company proposed the creation of a mobile phone. Even then, there were first attempts: a hybrid radio telephone was created. A radio station that could transmit a signal to the PBX was installed in the car. A device weighing 12 kilograms was placed in the car trunk. Remote control and the tube were placed in the cabin; the antenna was mounted on the roof. In order to connect with the radio, one had to call to the exchange telephone and give the telephone number installed in the car. A special button which had to be held while talking was used to transmit the sound. To hear the answer, the button was released. The possibilities of that kind of communication

were very limited as various obstacles greatly impaired the quality of speech.

On April 3, 1973 the first mobile phone call in the history of mankind was made. Strolling through the streets of Manhattan, Martin Cooper decided to make a call on his mobile phone to the AT & T Bell Labs office. He stood near the first cellular antenna that was installed on one of the nearby skyscrapers.

The official year of the birth of modern cellular mobile phone was 1983; it was the first commercial cell phone. After 15 years of continuous work on the development the phone company Motorola created the world's first cellular mobile phone – DynaTAC 8000X.

The project cost about \$ 100 million. The weight of the device was 794 grams, with the size of 33 × 4.4 × 8.9 cm and battery charge enough for an hour of talk, standby time was 8 hours. It was equipped with a LED display. Although the price of the first model number was \$ 3.995, its popularity grew rapidly and thousands of Americans were in the queues to purchase DynaTAC 8000X. None of the consumer technology took such a long period of time (37 years) from the inception of the first cellular technology to its commercial use.

Motorola started mass producing mobile devices and for many years has remained a legislator in the wireless cellular network. The popularity of the new technology has gained momentum. The company could not provide mobile communications to everyone. The reason for the slow introduction of new subscribers was insufficient power exchanges, insufficient number of transmitters and a small range of frequencies.

Company Bell System, which created its first model number half a year later than Motorola, in 1978 had 545 clients in New York and 3700 future subscribers standing in line for more phones. The waiting period for such luxuries could last 5–10 years. The overall number of potential consumers of Bell System phones in the U.S. reached 20 million customers.

Each year, new phone models are developed. Their capabilities are becoming more complex and functional. And who knows what awaits us next year. In pursuit of new models of mobile phones we forget about their original purpose – voice communications between users. To date, the mobile phone is the first on the list of the most necessary and affordable things.

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История создания мобильной связи

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Ключевые слова и фразы: история; передача звука на расстояние; сотовая связь; сотовый телефон.

Аннотация: В статье рассматривается история создания сотового телефона, который не только может передавать звук на расстояние. Он, скорее, похож на аппарат с большими возможностями, чем на то, что называется телефоном.

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Contact Lens with Built-in LCD for Image Translation

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Key words and phrases: invention; lens with built-in LCD; productive and compact devices for viewing images; scanner.

Abstract: The invention of new, more productive and compact devices has been relevant at all times. Contact lens with built-in LCD are compact and easy to use, they present limitless possibilities for application. The scanner notices defects and faults invisible to the naked eye. The process of accessing information are much simpler, hands are freer, and the dream “to photograph as you see” will finally become a reality.

Modern computer technology industry is growing rapidly. Every year, new devices are invented, and the old ones are perfected. The results of research in global finally lead to the improvement and the appearance of fundamentally new instruments and objects of labor, raising the awareness and skills of the workforce, which in turn serves as the basis for the transformation and growth of the productive forces of society.

In the time interval of 15 years ago such a thing as a cell phone was a novelty for people. Now even a huge touchscreen with 3D is no surprise. All new gadgets fill the market and enter into human life, spreading it in a variety of spheres ranging from medicine to entertainment. Research results eventually improve the appearance and brand new instruments and objects of labor; raise knowledge and qualifications of labor force.

The microdisplay with a built-in camera is used as contact lenses for eyes. It is synchronized with the portable device by Wi-Fi technology. It is waterproof and worn in the same way as a normal contact lens. With the camera, the desired object is scanned, the data is sent to the PC, and the inverse of the output comes as the display. The picture is displayed on the far focus, which does not prevent visual perception, eye movement is controlled.

As we see, the scientific and technical progress must move forward continuously. So the invention of new, more environmentally friendly, productive and compact devices has been relevant at all times. The contact lens with built-in LCD is compact and easy to use, and the possibility of its application is almost limitless. The scanner can notice defects and faults invisible to the naked eye. The process of accessing information is much simpler, hands are freer, and the dream “to photograph as you see” finally becomes a reality.

The major competitors are big companies like Sony, Samsung, Microsoft and Apple, which are also developing similar devices. The example is Watch Phone concept. Also, smart phones, tablet computers, personal computers are already available to most consumers.

The development of such a small but productive device is better to trust a company that already has financial capital, laboratories and factories. Some brilliant computer engineers can work on their own and submit an application for a patent. But the approximate cost of creating the working concept will be at least ten million dollars. The cost of finished goods per unit ready is expected around five hundred dollars, the average retail price is a thousand and a half.

Since such an innovation has a wide scope, the greater will be the likelihood of orders of national importance, such as health centers or the army, research centers, thus ensuring full coverage of the initial costs and substantial profits.

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Дисплейно-линзовая визуализация как объект трансляции изображений

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Ключевые слова и фразы: изобретение; линза-транслятор; продуктивные и компактные устройств для просмотра изображений; сканер.

Аннотация: Изобретение новых, более продуктивных и компактных устройств было актуально во все времена. Линза-транслятор, отличающаяся компактностью и простотой эксплуатации, представит практически безграничные возможности для использования. Сканер сможет заметить дефекты и неисправности, невидимые невооруженному глазу. Процесс доступа к информации значительно упростится, руки станут свободнее, а мечта «фотографировать как видишь» станет, наконец, реальностью.

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Augmented Reality as Major Innovation

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Key words and phrases: Augmented reality (AR); supporting information technology; virtuality and reality.

Abstract: The paper is a brief overview of augmented reality technology. It provides a brief history of the origin of the term and considers several important AR developments. The role of augmented reality in modern society is discussed.

To date, the development of technical aspects of society is gaining pace, incomparable with that of technological development in modern times. We can say that the law of acceleration in this case justifies itself in full. In other words, we can clearly see what a huge leap has been made by people in the field of physics, mathematics, biology and other applied sciences, and how many outstanding innovations have been introduced into the life to improve their existence. However, the discovery of augmented reality (AR) is particularly noteworthy among the infinite variety of creations of the human intellect.

It is assumed that the term “augmented reality” was coined in 1990 by Thomas Caudell, one of the employees of Boeing, an American corporation. The researcher was involved in the creation of a special display, which would facilitate the work of mechanics of aircraft construction plant. However, most of the devices had weak capacity and they did not have time to track rapid movement of the workers. Nevertheless, the term introduced the scientists began to denote an entire industry of technology.

Apart from T. Kodella several scientists were engaged in this technology and continued to deal with the issue of augmented reality and its practical use. The best known are Paul Milgrom and Fumio Kissin. In 1994, they created the theory of Virtuality Continuum, virtual reality space, which includes augmented reality and augmented virtuality. In 1997 Ronald Azuma defined the AR as a system that combines the reality with the virtuality, interacts in real time and operates in three-dimensional space.

Today, augmented reality is understood as the result of entering sensory data into any field of perception in order to increase the perception of information, and the area of its applications is expanding rapidly. A striking example of this is the penetration of AR-technology into the market of mobile gadgets and other electronic devices. Cameras of multiple mobile devices are equipped with augmented reality scanners. Take for instance a new generation of Iphone, smart phones and Smart Glasses and GoogleGlass (“smart glasses”), Samsung and Google products, laptops, Imac, gaming consoles and SmartTV. They contributed to a significant increase in demand for these goods and holistic renewal markets for such products; also, they marked the beginning of the technological race among major producers of electronic devices.

In this regard, much attention is paid to the development of quality applications with AR-technology to improve users’ leisure, education, meet consumer and professional needs. Talking about each of the areas, it should be noted that focus is directly on the expansion of informative capacity of the surrounding space, so as to arouse and maintain the interest of the

owner of the gadget to expand the boundaries of its use. Games and applications that process the video signal from the camera and have graphic elements superimposed on the image are developed for fun and enjoyable pastime. For example, established in 2004 Mosquitoes game for touchscreen phones with support for Java, allows players to destroy “parasites” on the background of what the camera device was directed at that time. Similar games appeared on other platforms: Box! Open Me (PlayStation Vita), SpecTrek (Android), AppTag (Android, iOS) and Book of Spells (PlayStation 3).

A variety of electronic translators (OCR Text) have won great popularity in the field of education. They enable to produce instant translation of a fragment of printed text, to which the camera is pointed; AR–technology guides (VAO Moscow for Android and iOS) provide additional information about a particular facility or location, being built in the camera lens of a tourist. Finally, for the needs of the life and profession scientists have developed a number of programs and applications, such as Dress up (a joint project of AR Door and manufacturer of men’s and women’s clothing Topshop), a virtual dressing room that combines the technology of Microsoft Kinect and AR; Augmented Reality Glasses from German car manufacturer BMW designed to simplify the process of repair of complex systems architecture and the latest models of the BMW engine; developed by scientists from Birmingham technology VIPAAR (Virtual Interactive Presence in Augmented Reality, or “virtual interactive presence in augmented reality”), used in glasses GoogleGlass for bilateral conference in real time. First this technology was applied for complex but successful orthopedic surgeries by the surgeons from the University of Alabama. Brent Ponce and Fanny Dantuluri we located at a great distance from each other. In addition to all of the above developments, it is important to emphasize the role of augmented reality in military technology, particularly in piloting combat aircraft, where the technology is getting further in terms of its commercialization. Modern developers of “smart glasses” Samsung and Google use similar technology to scan the surrounding reality and soon due to the dominant technology in today’s minimalist trend they will raise it to the level of production of AR–reality contact lenses.

To sum up, augmented reality, which used to be the product of imagination and dream of science fiction writers, in the twenty-first century has become a reality and continues to strengthen its position in modern society, gaining popularity with the growing number of people interested in developing and improving technical side of their life, seeking to comfortable livelihood. Augmented reality opens up new horizons for understanding the relationship of reality and virtuality and is direct evidence that the man is the creator of the world.

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Дополненная реальность как одна из крупнейших инноваций современности

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Ключевые слова и фразы: виртуальность и реальность; вспомогательная информация; дополненная реальность; технология.

Аннотация: Статья является своего рода кратким обзором технологии дополненной реальности. В ней представлена краткая историческая справка о появлении данного термина и рассмотрены несколько важнейших разработок в области дополненной реальности. Уделяется большое внимание роли увеличенной реальности в жизни современного общества.

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The System of Image Compression

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Key words and phrases: automation; compression; images; system.

Abstract: The paper discusses the ways of improving the efficiency of information processing; innovative methods of image compression are proposed. In North Caucasian Institute of Mining and Metallurgy digital image compression algorithm was developed and patented in Russia. It can be used for different purposes and is commercially available for a limited number of consumers as digital compression software. The product accelerates the information processing capacity by several times; it can be used by various departments and agencies of the Russian Federation, including special ones. The possible deployment of the tool is also discussed.

Introduction

At present, the strategic priorities for research into information and communication technologies are aimed at increasing the flow transfer of topographic and geodetic information. However, the inability of existing methods to compress it for further processing and transmission speeds up the need for a timely solution. Current theoretical and experimental research, planning and industrial use have shown that the most effective way to solve the task of increasing the efficiency of image compression is the compression using variable fragments.

To increase the efficiency of compression of still images some software uses complex mathematical models that do not allow you to fully operate compression without loss of image quality, and is not able to cover the full range of static images.

Description of the system

Fig. 1 provides the description of the developed system of compression. Block 1 registers the images of the examined territories with DVRs in the online system. Block 2 transmits information received with aircraft flight recorders which monitor to be further analyzed geographical areas of the earth. Block 3 provides information received by the satellites of the Earth, and Block 4 is maps and databases of existing navigation systems. Further, information is transmitted to SAOI, where a decision on the compression of certain images and video sequences is made and transmitted through the channels of communication to the system of compression of information SCI (Block 6). Then, the compressed digital data is transmitted into ranking unit by priority (importance, secrecy, geographical location, etc.) (Block 7). Then compressed files from the block 7 are sent to Block 8, where they are kept until certain commands related to the systems for subsequent operations, such as research, comparison

and so on are given.

The principle of operation is based on the SCI developed previously (RF patent number 2339082), compression method is described below.

To improve the compression efficiency, and therefore reduce the amount of compressed files, the speed of file decompression prior to separation image into square pieces, further comparison and conversion of which can lead to the selection of a subset of the base that is stored in memory. From the point of view of computer graphics it is the most advantageous to reduce the amount of compressed files (with a high image quality) by replacing some fragments of still image with the so-called base fragments.

The direction chosen by the authors is relevant, because a prime example-pressed to improve the processes of image compression is a system in which the need for storing a large number of images in offline mode:

- on-board systems of photographing the Earth's surface;
- satellite systems receiving space images of all kinds;
- different types of navigation systems (GNSS and analogues).

Conclusions

Some groups of images allow significant losses that are not visible by visual estimation, and thus the highest possible compression ratio for them is high. If other groups of images even small losses lead to significant distortions, and as a result, the maximum compression ratio for them is small.

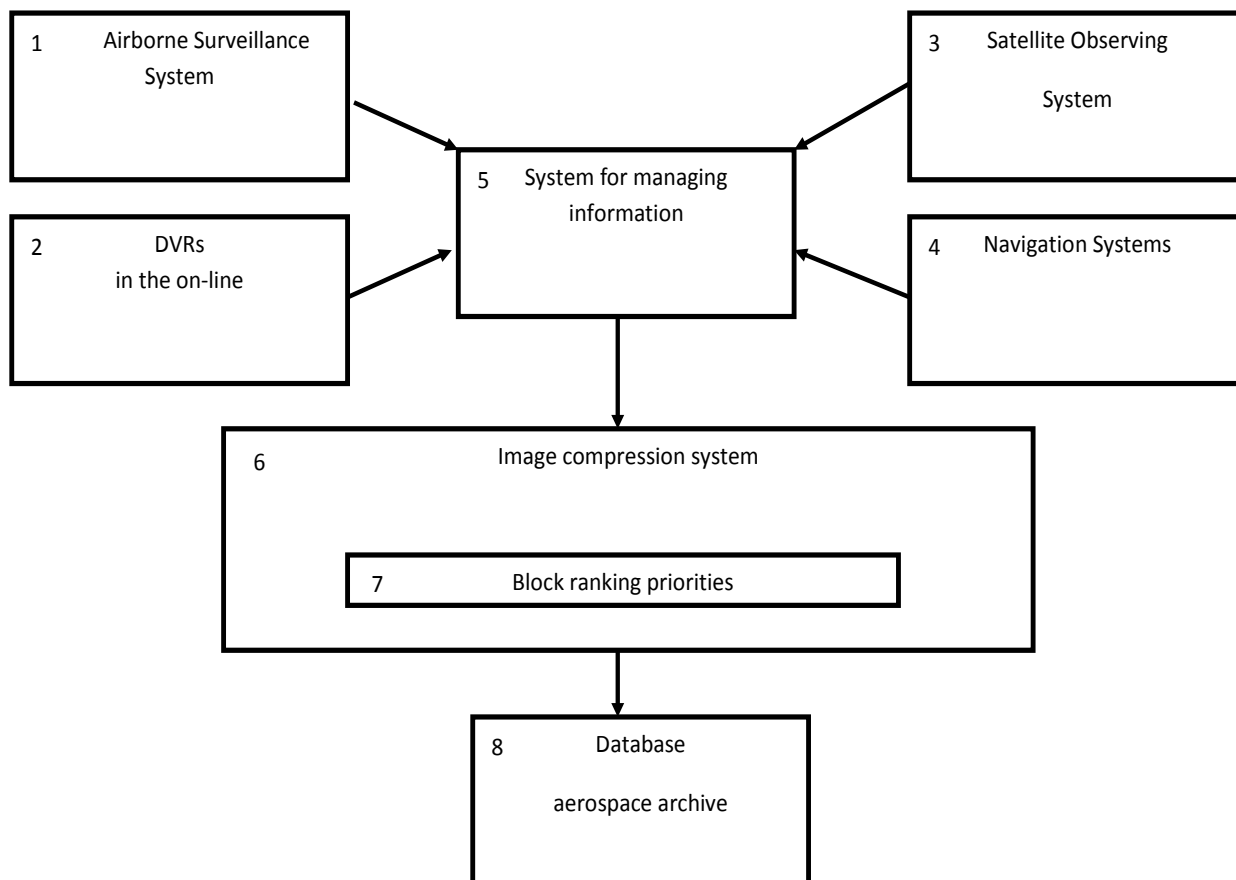


Fig. 1. Description of the developed system of compression

The above leads to the conclusion that software compression SCI produces unlike formats such as JPEG, BMP, TIFF smaller files better. Consequently, the experimental study of image compression space images confirmed the adequacy of the theoretical calculations of practical results. The innovative methodology compression space images has unlimited potential for further development in the case of using it in the development of a wide range of geographic information systems, navigation systems of different types and purposes, as well as the development of space.

In conclusion, we note that while working on the project were carried out detailed market research of Russian and world markets showed no analogues.

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Система компрессии изображений

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Ключевые слова и фразы: автоматизация; изображения; компрессия; система.

Аннотация: Рассматриваются методы повышения эффективности обработки информации, анализируются инновационные методы сжатия изображений. В СКГМИ (ГТУ) разработан и запатентован в России алгоритм сжатия информации, готовый к запуску на полную мощность для определенного круга потребителей. Он представляет собой инновационный программный продукт для сжатия цифровых изображений различных типов, позволяющий увеличивать скорость обработки информации в несколько раз. Также обсуждается возможность дальнейшей разработки продукта.

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Theoretical Aspects of Interaction of Mega-Corporations and Regional Economic System: Content and Form

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Key words and phrases: investment process; mega-corporation; method of capital combinations; regional economic system.

Abstract: The article considers the intensive development of interaction of mega-corporations with regional economic systems. It is revealed that the regional research in this area faces substantial difficulties, including methodological ones.

The global integration of economic relations determines intensive development of interaction of mega-corporations and regional economic systems, which involve the human factor, capital, infrastructure, resource base and institutions of both system entities undergoing dynamic and profound transformations. However, regional studies in this area face significant difficulties, including methodological ones. The nature of the subjects of this interaction leads to the variety of methods, among which integration is particularly important at the present stage of development; it provides the link between the resource bases and the factors of the economic processes of mega-corporations and the regional economic systems, creating the conditions for the synergistic effect. Accordingly, one of the priorities of the regional researches is the search of the ways of the interaction integration, allowing the participants to extract the meaningful and the sustainable synergistic effect in the commensurate increment of their competitiveness with the strategic perspectives and the trends prevailing in the global economy [3].

One of the lessons of the global recession was the understanding of the special importance of the effective regulation of financial and investment links between mega-corporations and the ies With the growing interdependence of the reproductive processes and the financial subsystems, the destabilization of one of the participants of the studied interaction can shape the massive threat to the entire process and far beyond it [6]. Hence, there is the need for the justification of effective diagnostic tools of the problems that arise here, as well as the development of appropriate mechanisms of territorial and corporate regulation. Legitimately, it is important to allocate the priorities of the scientific research – the diagnosis of the systemic competitiveness of the both subjects, the diagnostics capabilities and the limitations of the partnerships formed during the tested interaction, as well as the diagnostics of the accumulation of innovative assets in the regional economic system and mega-corporation system.

The regional economic systems of Russia are included in the process of global integration, having the different capabilities that largely set the pace, the nature and the individual orientation of the transformations occurring in their internal environment [4]. The effective interaction with the mega-corporation may provide the additional impetus to the dynamically and steadily developing region, which is the Krasnodar region, expressed in the creation of new

opportunities of modernization. At the same time, the sustainable and productive spatial forms of organization of interaction of the specified subjects system are in demand [5].

However, the analysis of the domestic and foreign studies of the stated scientific problem, brings us to the conclusion that the development of some of its essential aspects is insufficient, including the heuristic potential of the conceptual representation of the regional economic system as a quasi-corporation in the study of the stated problem; the changing of the composition of the functions and the structure of the assets in the course of interaction between mega-corporations and the regional economic system; the main forms of this interaction; the realization of the potential of mega-corporations in the process of modernization of the regional economic systems in terms of the rental orientation of the development of the national economy of Russia; the mechanisms of the diagnostics and the tool support of the development of the cooperation between the mega-corporations and the regional economic system. These circumstances determined the choice of the research topic, the setting of its goals and objectives [6].

Since the interaction produces the different forms of business locations in the internal environment of the regional economic system, each of which derives from the combination of the productive resources and the factors of the economic process, in the study the method of the capital combinations proposed by Schumpeter is claimed. The method of the capital combinations belongs to the field of evolutionary economics, which suggests a focus on finding and organizing of the resources of the particular importance for the development of the economic system, where they are positioned [8].

The main components of this method are applied to the meso-level of the economic researches:

- representation of the internal environment of the regional economic system as space, in which the reproduction of the “link” of the interacting capitals is put into effect, including the mega-corporation capital; wherein each capital carries certain development opportunities of the territory;
- distinction between the possible zones of the core and the periphery in the structure of this space, the localization of the most promising core;
- formation of the combinations of capital in the core, providing the priority of the need for the evolution of the regional economic system and mega-corporation.

Let's reveal the main features of this method using the heuristic opportunities of the “lattice of the intellectual models” which is based on a new understanding of the investment process, adequate to the imperatives of the post-industrial transformation by R. Hagstrom:

- the subject who professionally prepares and makes the investment decisions, goes far beyond the traditional activities of the financial competencies, the development on the extended field of the competencies involves knowledge of physics, mathematics, psychology, engineering sciences and humanities, etc.; we are talking about the formation of a broad base of knowledge necessary for a capital combination;
- combination of the specific heuristic capabilities of each of these areas of the scientific knowledge in a holistic basis for the development of effective capital combinations, that is, creating a platform with the inclusion of the elements of a qualitatively new knowledge to extract synergies from the investment; the given platform allows obtaining the conceptual understanding of the investment process at a higher level than before, in terms of separation of the areas of scientific knowledge;
- the given platform with the incorporated elements of new knowledge becomes a strong intellectual base (system “lattice of the intellectual models”) for the adoption of both investment and related decisions that are in demand due to the modern level of development at meso-level;

– accumulation of the elements in the system “lattice of the intellectual models” and their sequential testing in the investment process of the regional economic system; mega-corporations convert the investigated interaction in one of the fundamental processes of developing knowledge economy [7].

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**Теоретические аспекты взаимодействия
Мега-корпорации и региональной экономической системы: содержание, формы**

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Ключевые слова и фразы: инвестиционный процесс; мега-корпорации; метод капитальных комбинаций; региональные экономические системы.

Аннотация: В статье рассмотрено интенсивное развитие взаимодействия мега-корпораций с региональными экономическими системами. Выявлено, что региональные исследования в данном направлении сталкиваются с существенными затруднениями, в том числе методологического характера.

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ISS and Competition: Prolonged Waiting for Metamorphosis

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Key words and phrases: competition; competitive space; institutional & spatial synthesis (**ISS**); spatial competition.

Abstract: The article covers scientific categories “spatial competition”, “institutional competition” in economics theory. The perspective of such categories as “competition” in the context of institutional & spatial synthesis has been discussed.

In June 2003, the analytical data journal “Competition and Market” published an article by Honored Economist of the Russian Federation, head of the regional office of the Ministry for Antimonopoly Policy of the Russian Federation in Saint-Petersburg and Leningrad region Oleg Kolomyichenko “Small business: prolonged waiting for metamorphosis”. The author considers the main problems of transition of administrative-planned economy to market-driven one, and meaningfully considered the “problem of small business as one of the most important phenomena inherent to market economy, that requires understanding and conducting a systematic and long-term public policy”. These problems after 10 years have not been resolved. Apart from emergency market infrastructure institutions, cultural features, historical implications of the spiritual genesis of domestic entrepreneurship he fairly concludes that “the problems of the development of entrepreneurship in Russia objectively are deeper and more complex than in most post-soviet countries, not to mention the countries of Eastern Europe”. Perhaps, the “invisible hand” cannot cope with all of them.

In subsequent articles [5, p. 19] the author introduces the concept of the existence of two economic systems: a model of the “potential” economic system, that reflects and represents an “evolutionary , extensive way of economic development”; the model “capital” economic system, expressing “revolutionary, intensive economic processes in which each and every component of the economic potential optimally implemented at the moment and at the same time the mechanism created prerequisites for the future use of the effective application created opportunities.”

In each of these models the competition has its own features: a model of “potential” economic system implies the competition in the form of the struggle for fast material resources and rights to them, resulting in a potential predatory consumption; the model of “capital” economic system focuses primarily on efficiency, pure competition. Skills, foresight, dedication, knowledge of the law, understanding of the mission of business, which is not confined to profit, taxes and jobs, are quite important.

The position of the respected scientist, the head of the antimonopoly service with years of experience matches that of Ph.D. V. Gordeev, who has been reviewing the essential content aspect of competition and its dynamics in the context of theoretical economics for a long time [2, p. 145]. According to Gordeev, “the development of the modern theory of competition, adequate realities of economic transition of becoming a postindustrial society is inconceivable without political economy methodology”. At the same time, “the modern theory of competition should combine political economy analysis and aims to study the essence of the subject with the neoclassical analysis of the study by its form of market structure”.

Institutional theory also provides a new view of the competition as an institution that does not have a decisive influence on modern economic development. O. Williamson treated the competition as a form of contract process, which allows removing the problem of rationality and opportunism. As pointed out by Gordeev, “institutional concept helps to understand the evolution of the modern competition as a tendency towards “extinction” of the last participants on the basis of the interdependence of the contract” [2, p. 146]. However, we agree with O. Inshakov and D. Frolov: “Despite the scientific fashion, institutionalism alone can in no way become a methodological treatment for Russia, and any other country. It should organically combine the theory of evolution, along with other approaches, systematically describing transformational and transactional factors” [3].

R. Greenberg pointed out that Russia’s economy is not a mono-object and spatially inhomogeneous space, functioning on the basis of vertical and horizontal economic, social, and economic relationships. You can talk about the need to overcome the stereotype of the “point of the economy” as the totality of the territorial, demographic, natural characteristics necessitates taking into account the spatial factor in the development of any long-term socio-economic outlook, ideology, and state economic policy.

The term “spatial competition” occurs in three economic theories. It is explained by such criteria as object and subject of competition.

The first direction is the theory of resource allocation (for example, the city’s economy, and competition for resources agents). For the second direction, the authors [7, p. 268] give a definition of spatial competition: “Spatial competition is the one among producers (sellers) of identical or interchangeable goods for a domination of the space market by influencing the price”.

In the third direction of industrial organization theory, spatial competition is understood as strategic competition among firms producing differentiated products.

The authors [7, p. 269] reminded of one particular feature related to the definition of the object of spatial competition, “in reality, firms do not compete so much for the market share as per the maximum potential amount of profit that can be obtained in this market ... If the firm can choose both the price or quantity of products sold, and its location on the resulting profit it will operate two opposing factors: the level of prices and market share”.

The solutions to these problems are beyond the Anglo-Saxon liberalism or social protection. Modern research in this area should consider : 1) spatial competition is not only seen as competition for markets and companies, but also as agents of competition for resources. 2) the spatial competition must overcome neoclassical interpretation, priority vision of only industrial organization; 3) it is necessary to carry out the synthesis of spatial and institutional methodology, to construct more integrated scientific ideas about innovative spaces, expand substantial characteristics of competition; 4) methodological possibilities of institutional spatial synthesis can be used to design a competitive space [6].

In conclusion, it should be noted that the analysis of historical lessons of transformation provides a basis for a very important conclusion. It shows that only a combination of planning principles with market tools and the human factor can bring success. The cooperation of these factors is a necessary requirement for socio-economic progress.

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Институционально-пространственный синтез и конкуренция: затянувшееся ожидание метаморфоз

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Ключевые слова и фразы: институционально-пространственный синтез; конкурентное пространство; конкуренция; пространственная конкуренция.

Аннотация: В статье рассматривается использование категорий «пространственная конкуренция», «институциональная конкуренция» в экономической теории, а также метаморфозы понятия «конкуренция» в контексте институционально-пространственного синтеза.

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