

УДК 001.11, 004.81

*A.V. Sosnitsky**Berdyansk State Pedagogical University, Ukraine**Ukraine, 07110, Zaporoz' e area, Berdyansk, Schmidt street, 4**Intellectualization of National Education System through Universalization**A.B. Сосницький*

Бердянський державний педагогічний університет, Україна

Україна, 07110, Запорізька обл., г. Бердянськ, ул. Шмідта, 4

Интеллектуализация системы национального образования посредством универсализации

O.B. Сосницький

Бердянський державний педагогічний університет, Україна

Україна, 07110, Запорізька обл., м. Бердянськ, вул. Шмідта, 4

Интеллектуалізація системи національної освіти за допомогою універсализації

The paper is dedicated to the problem of modern classical Education based on knowledge. This Educational system has, essentially, exhausted its potential owing to the limited biological ability of people to perceive new knowledge, which leads to multiple social problems and conflicts. It is obvious that further development of the Educational system should be based on the other fundamental principles that, first of all, make the resources of people's thinking more active. But there is no adequate formal theory of animate (intellectual) phenomena for the calculation of such processes. The method of solving these problems by the application of Universe Model for a substantiated deduction of the concept of Education and absolutization of the whole system of derivative abstracts is shown in the paper. The Reform of the national Education system in four consistently developing stages is offered, the final of which is directed at making people genius by the achievement of maximum thinking by means of an approach to absolute properties of the Universe. The main principles of genius Education are deduced, which at professional pedagogical concrete definition can already be assumed today as the basis of the new organization of educational processes and didactic materials to them with the use of available electronic environments and means of training.

Keywords: the Universe Model, education Reform, system of national Education, electronic technologies of Education, World standards of Education, technology of genius Education.

Статья посвящена проблеме современного классического образования, основанного на знаниях. Такая система образования, по сути, исчерпала свой потенциал из-за ограниченной биологической способности людей воспринимать новые знания, что ведет к многочисленным социальным проблемам и конфликтам. Очевидно, что дальнейшее развитие системы образования должно быть основано на других основополагающих принципах, активизирующих ресурсы мышления людей. Однако для расчета таких процессов отсутствует адекватная теория живых (интеллектуальных) явлений. В данной работе показано применение Универсальной Модели для вывода универсальной системы понятий образования и концепции системы национального образования на этой основе. Такая реформа предполагается в четыре развивающихся этапа, последовательно ведущих к гениализации мышления посредством приближения к абсолютным свойствам Вселенной. Выводятся основные принципы гениального образования, которые при профессиональной конкретизации уже сегодня могут быть положены с основу новой организации образовательных процессов и дидактических материалов к ним с использованием имеющихся электронных сред и средств обучения.

Ключевые слова: Универсальная Модель, реформа образования, система национального образования, электронные технологии образования, мировые стандарты образования, технология гениального образования.

Стаття присвячена проблемі сучасної класичної освіти, що заснована на знаннях. Така система, по суті, вичерпала свій потенціал через обмежену біологічну здатність людей сприймати нові знання, яка веде до численних соціальних проблем і конфліктів. Очевидно, що будь-який подальший розвиток системи освіти має ґрунтуватися на інших основоположних принципах, які активують ресурси мислення людей. Однак для розрахунку таких процесів відсутня адекватна теорія живих (інтелектуальних) явищ. У даній роботі показано застосування Універсальної Моделі для виведення універсальної системи понять освіти і концепції системи національної освіти на цій основі. Така реформа передбачається в чотири етапи, що послідовно розвиваються і ведуть до геніалізації мислення за допомогою наближення до абсолютних властивостей Всесвіту. Виводяться основні принципи геніальної освіти, які при професійній конкретизації вже сьогодні можуть бути покладені в основу нової організації освітніх процесів і дидактичних матеріалів до них з використанням наявних електронних середовищ і засобів навчання.

Ключові слова: Універсальна Модель, реформа освіти, система національної освіти, електронні технології освіти, світові стандарти освіти, технологія геніальної освіти.

The Universe Model for Solving Complicated Fundamental Problems

Modern Science appeared in a relatively hidden crisis that shows itself in the combination of major development of comparatively simple areas and chronic stagnation of difficult ones. A critical analysis shows that the former areas apply to inanimate nature that are studied well by classical Science, and the latter – to animate nature for which an adequate theory is actually absent [1].

The reason for the problem lies in basically limited character of modern scientific foundation for the formalization of difficult Universe phenomena and it is quite obvious that the next scientific revolution must happen for that, similar to those fundamental Reforms in physics, mathematics etc. that had happened before. This Reform is akin to the well-known attempts of creation of an integrating theory of physical fields and it must solve even a more serious problem of creation of a unified theory of inanimate and animate nature and, moreover, unite all scientific areas into a single Universe Model (UM, Model) of Nature [2-4].

It is obvious that a certain UM must become such an integrating theory, from which the Universe Methodology must deduce the whole existence of our Universe. The creation of such a Model and such a Methodology (as its part) is an arduous task, but Science is doomed to perform it in order to remove actual global problems, the number of which grows infinitely all the time.

For the first time the conceptual fundamentals of such a Model and Methodology that are universal in the full sense of this word are developed in the following papers [5-7]. They claim to be a uniform scientific standard and have practical uses in all scientific and applied areas. In fact, it is the highest meta-theory, allowing manual deduction of secondary concepts of the applied theories of separate areas as the basis of subsequent formalization of their separate entities. In this paper it is used for the burning problems of Education of people.

The Problem of Classical Education Based on Knowledge

Education of people is the third important component of Science as a copy of the Universe in Humanity (Fig. 1) that must satisfy three basic demands:

- external consistency of the Universe;
- internal consistency of a copy;

accessibility to all the subjects of Humanity.

As far as the Universe, Humanity and Science consist of separate mutually similar entities, then these demands are made on each of them. At the same time, the previously mentioned three are so interrelated that every achievement in Science generates progress in the corresponding area of Humanity and vice versa, every shortcoming in Science generates a problem in the

corresponding area of Humanity (Fig. 2). As the rule of invisibility of the subject to the unknown to it entity dominates, problems are difficult to identify in Science and easy – in existence where there are many of them at all times.

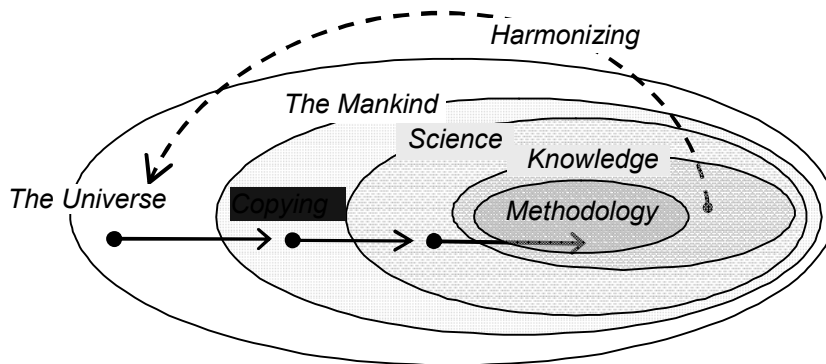


Figure 1 – General Scheme of Science

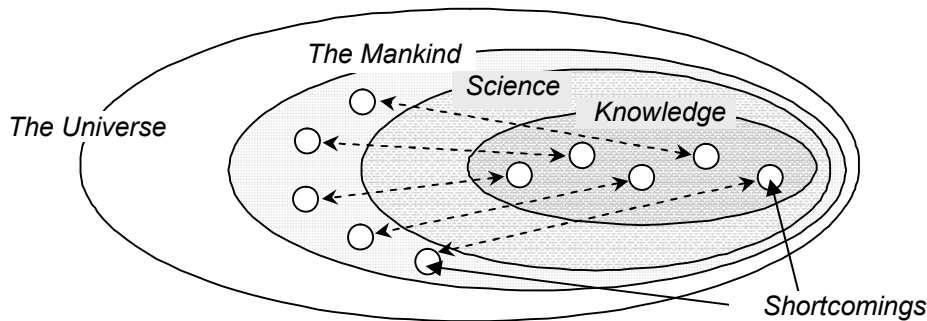


Figure 2 – The Illustration of Mutual Correspondence between Shortcomings (white spots) of Science and Humanity

Therefore, the obvious problems of existence are good identifiers of scientific shortcomings. If in the area of natural Sciences some surprising results have been achieved up to the limits of existence of our Universe, then in the humanitarian area some obvious deviations are common at all the levels from personality to international relations which are pay for our ignorance.

In this paper from all the spectrum of shortcomings of Science and Education we are going to limit ourselves to the central problem of exhausting the resource of classical scheme of Education, based on Knowledge owing to the basic limited ability of a typical biological type of a man to perceive knowledge above a certain volume and speed, and the amount of knowledge produced by modern Science is increasing dramatically (Fig. 3) [8-12].

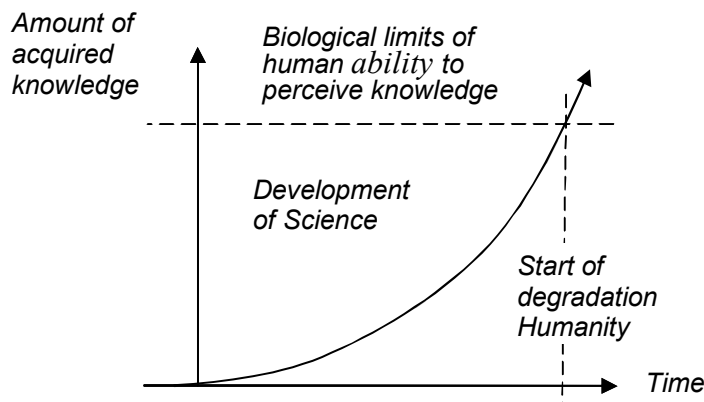


Figure 3 – The Scheme of main problem of modern Education based on Knowledge

Because of this shortcoming Humanity is forced to 1) increase the terms of Education up to the continuous lifelong, 2) increase the intensity of training, 3) apply more effective didactic facilities, 4) limit other natural necessities of people, 5) increase the retirement age, 6) deal with the prolongation of life etc., which overstrains its biological ability and generates many social problems. It is obvious that 1) all the attempts of cosmetic Reformation of classical Education only preserve the crisis and 2) the problem can be solved only within the framework of the other paradigm of Education.

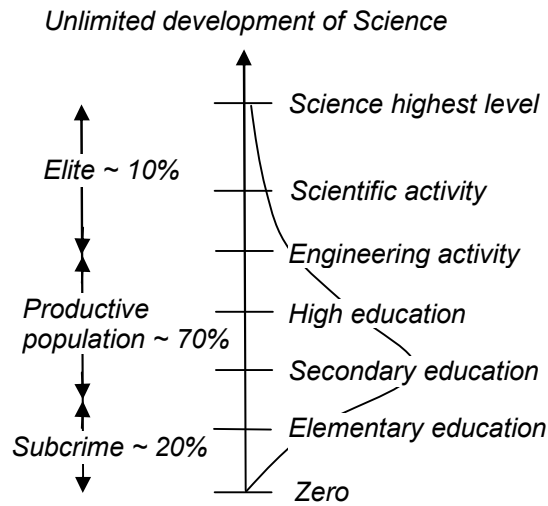


Figure 4 – Characteristic Distribution of Education in Modern Society

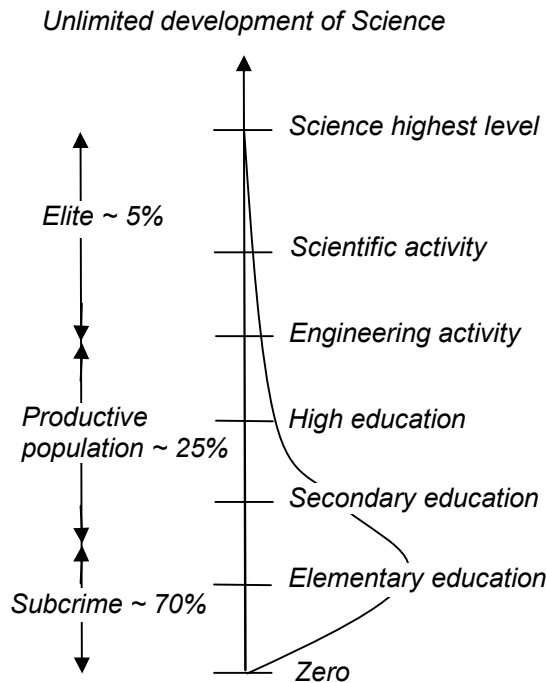


Figure 5 – Characteristic Distribution Tendency of Education in the Near Future

The problem of Education has a World character and is caused by the followings negative system factors:

1. The growth of the level of World Science is increasing, which extends the spectrum of erudition of people from a zero and to the highest levels (Fig. 3). The greater part of people cannot reach the highest levels and “falls out” of the growing requirements of Civilization because of biological and social insufficiency, increasing a relatively uneducated part of Society as a source of different forms of crime (the literal meaning of this word is wrong thinking) up to terrorism that is already observed everywhere nowadays (Fig. 4).

2. The rapid growth of Knowledge has made impossible their full-fledged adoption even from old times. The tendency of reduction of academic disciplines in favor of the introduction of the newest modern continuously arising progressive theories has outlined today. The limit of “saturation” of factual memory of people that is increasingly substituted for computer information resources is approaching, and that substitution eases the problem slightly, but does not solve it.

The Idea of Education Based on Thinking

Our Universe is thus arranged that giving rise to a problem it always gives means of its solving which is simply necessary to discover and apply. The idea of this paper is in showing all the people as Universe entities and deduction from the UM a full-fledged conception of their maximum Education with the mobilization of all the possible resources of the Universe (Fig. 5) [13]. For this purpose it is necessary to have the Model itself and some preliminary formal definitions of all the concepts that are relevant to this deduction. For the first time the fundamentals of such an approach were put forward in the above-mentioned papers.

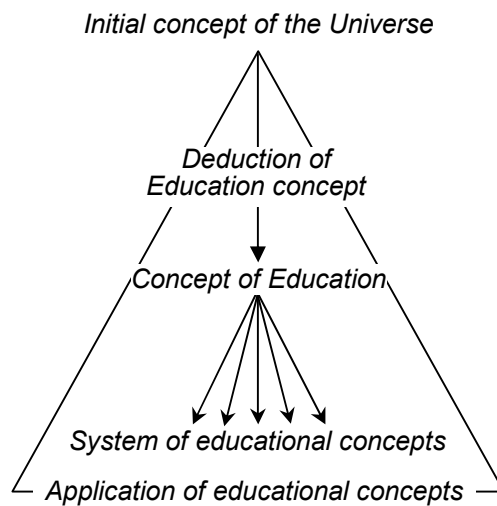


Figure 6 – The General Scheme of Application of Educational Concepts

In fact, the obtained concept will become a methodological basis for genius Education of people, allowing to radically change people, families, teams, states and Humanity as a whole, and while achieving the absolute level of use of the Universe resources to solve all the known and future problems of Civilization. The most complete effect of new Methodology will be achieved at the level of nations that will experience radical development and advantage in the World Civilization.

The central part of this idea is a transition from Knowledge teaching to Thinking teaching that allows to reduce the volume of the transmitted knowledge at the expense of its acquisition by a logical deduction (as a part of knowledge) inside subjects (Fig. 6). The problem of thinking has always been and will always exist, and it determines all the internal and World problems in the long run.

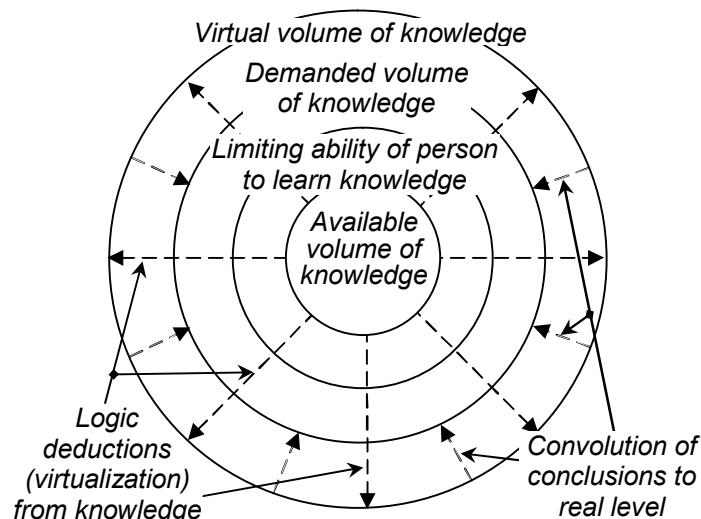


Figure 7 – The Scheme of Reduction of the Acquired Knowledge by Means of Virtualization

While experiencing reflex teaching (knowledge) a man obtains some incomplete copies of interacting with them entities (information). However, there are some additional stages of teaching which follow from the UM and which are incompletely used during classical teaching such as understanding and research.

The transition to those stages by means of the Universe Methodology opens giant additional resources of Educating people without excessive material costs that are already available to every national system of Education of even modest states. The problem of Education mainly consists in the correction of a subjective part as it is the most inertial part of such a system.

The Principles of Educational Reform

The implementation of educational Reform is possible by gradual consecutive and parallel (within the framework of every educational discipline, class, educational establishment and nation) transition from the modern classical paper-oriented system of national Education to a new technical, informative, organizational, methodological and didactic basis, including four components:

- electronization of Education (E-Learning);
- democratization of Education;
- World standardization of Education;
- genealization of Education.

The Component of Electronization of Education

The purpose of this educational component is a complete transition from the paper-oriented educational technologies to electronic forms for automation of all the educational activities. This transition is feasible by means of popular computer support, and it satisfies the basic part of educational requirements.

For the first time in the last few years computer environment has become widely available in the World according to all the relevant to universal Education indications:

- acceptable cost for a greater part of pupils and educational establishments;
- availability of free of charge information and software;
- wide spread of cheap global and local mobile networks;
- certified facilities for distance learning;
- universal computer literacy of pupils and teachers.

For the first time making Education electronic ensures:

- electronic forms of teaching without lecture notes;
- completely accessible curriculums and didactic materials;
- efficient perfection of individual materials;
- arrangement of materials from authors' originals (euronorm);
- complexification of materials (text, graphics, video, sound, motion, color);
- World and national database of didactic materials;
- maintenance of a high standard of study quality;
- distance learning (independence from the pupil's location);
- continuous availability of materials to pupils according to the 24/7/12/365 principle;
- on-line inspection of educational process;
- continuous on-line connection with pupils;
- complete multilevel integration of teaching;
- on-line educational reporting;
- World standardization of Education;
- elements of technology of genius Education and Training.

Making Education electronic improves all the important educational indicators in a complex way:

- on average, makes teaching quality twice as high in complexity;
- controls according to the principle "all is accessible, understandable is possible";
- increases activity and independence of thinking of pupils;
- develops professionalism and competence;
- universalizes academic disciplines and globalizes Education as a whole;
- commands mutual respect of participants and stabilizes the educational process;
- facilitates the work of all the participants of educational process;
- duplicates easily educational technologies;
- ensures complete transparency and control of teaching at all the levels;
- initiates an complete system of national Education.

The Component of Democratization of Education

The purpose of this educational component is the creation of effective flexible adaptive progressive complete national structures of Education management, at the head of which the "expert – teacher – pupil" triad is placed.

The arrangement of educational process participants changes radically. Experts and teachers are placed at the head of the above-mentioned triad as they are the most competent. The Ministry coordinates the activity of this triad at all the levels to meet the needs of the nation in Education.

Key specialists are united in specialized councils of experts for reasons of reliability and they bear full personal responsibility for the quality of the national Educational system under the control of the Ministry. The activity of the specialized councils is controlled by the central audit

council. All the councils are fully transparent and must reasonably react to all the questions within their area of competence with the use of administrative apparatus of the Ministry.

Expert councils in specialities:

- determine qualifying requirements to the stages of Education;
- determine the content of Education;
- determine the trajectories of the complete Education in the system of educational establishments;
- develop educational standards of specialities and educational establishments;
- prepare model programs, methodologies and textbooks of disciplines;
- issue certificates of quality for teachers and educational establishments;
- monitor progress in Education at educational establishments.

The Ministry coordinates all the national educational processes:

- keeps classifying records of specialities;
- determines the perspective requirements of the state in specialists;
- coordinates speciality councils of experts;
- approves complete curricula of specialities;
- runs electronic databases of materials for tests and pupils' certificates;
- provides material support for the system of Education.

Regional components of the Ministry:

- approve work programmes and didactic materials according to the established standards.

Educational establishments (teachers):

- on the basis of model programs prepare work programmes, didactic and testing materials according to the real conditions of educational establishments which are added to the database of the Ministry;
- realize individual educational processes with testing through the base of the Ministry.

Students:

- study and choose the trajectories of receiving Education in specialities;
- meet the requirements of an educational process in educational establishments and hand in testing materials and results of final tests to the database of the Ministry;
- obtain individual electronic certificates.

All the unnecessary traumatic forms of pupils' knowledge control are cancelled except those by interested educational organizations, bearing responsibility for the quality of the knowledge provided by them. The receiving educational establishments check the grades of individual electronic certificates by the repeat control in the relevant educational disciplines with the comparison in the database of testing materials of the Ministry.

The Education System becomes democratic and marketable, and pupils independently choose the volume, quality and cost of Education in accordance with their desires and possibilities. They have full right to that in our age of limited resources as the leading participants of an educational process with the support of the state.

The Component of World Standardization of Education

The purpose of this educational component is the compatibility of the national system of Education with World educational standards as far as not a single country can compete with the whole World. Compatibility is achieved by the participation in development and application of the well-known special and integral international standards in national Education and allows

stronger integration and democratization of World Science and Education. The World standardization opens the possibility of free Education in different World scientific and educational establishments.

The Component of Genealization of Education

The purpose of this educational component is the maximum use of the Universe resources for the highest Education within the framework of possibilities of people. The Universe and its resources are infinite, but each of them taken separately, as well as their sum, in each situation is limited. It is therefore necessary to look for, determine the volumes and use resources in the specific conditions of each person.

The problem of Education has been continuously solved from the moment of the origin of Humanity up till now, which testifies to the incompleteness of the attained quality of educational technologies, using only a part of educational resources. For more complete use of the resources it is necessary to conduct special research, impossible within the framework of modern Science owing to the extraordinary complexity of the phenomenon of Education that is incomprehensible by the empiric methods. Such resources can only be deduced from the UM that is shown in this paper.

Genealization of Education is a final central special-purpose component of the Reform, in which thinking becomes the main resource of the growth of people's Education, allowing to coordinate it radically with the requirements of modern Civilization.

Implementation of the Educational Reform

The Reform supposes an immediate soft evolution from the current to the special-purpose state with the coexistence of both forms of Education as all the four components develop at the followings major levels:

- personal (an educator, a teacher, a lecturer);
- a subdivision (a children's group, a class, a department, a faculty, an institute);
- an educational establishment (a kindergarten, a school, a lyceum, a college, a university);
- a region (a village, a district, a city, an area);
- a Ministry (a state).

The Reform consumes financial resources, but it is mainly within the framework of state budgets in combination with fully affordable accumulative expenses of pupils, parents and sponsors with the term of technical renewal of about five years. The most problematic is a conservative subjective part – experts, teachers, management, and the system of training and retraining of pedagogical staff.

The Paradigm of the Universe Model

The dogmatism presupposes empirics and heuristics of obtaining and verification of phenomena formalism hypothesis with our difficult of access, deeply internally divided Universe (Fig. 8a). It is possible only for simple phenomena.

Universalism presupposes the deduction of phenomena formalisms from the UM, previously obtained from the Universe (Fig. 8b). The UM exceeds (virtualizes) the properties of the Universe and is easily accessible by all its components for the phenomena of any complexity which Intelligence is.

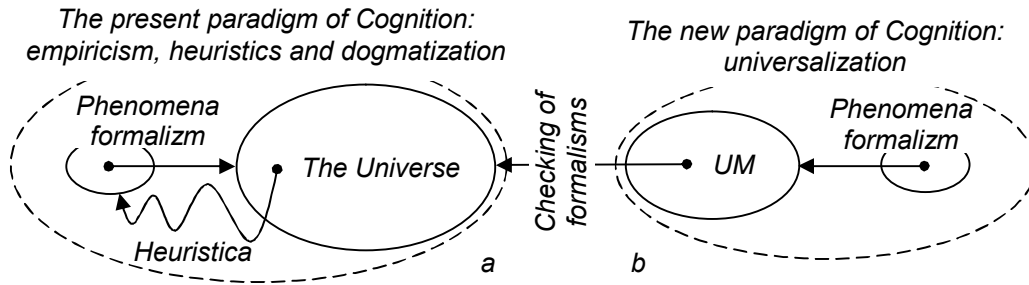


Figure 8 – The Schemes of Phenomena Formalization in the Dogmatic and Universal Paradigms of Cognition

The key problem is in obtaining and continuous development of the UM until the achievement of the Cognition limit – the Absolute UM which generates the other absolute scientific paradigm of the Universe. The Universe (Absolute) remains the highest criterion of truth in all the paradigms.

General Conception of the Universe Model

General architecture of the Universe is based on the 5 Postulates of Absoluteness: Abstractness, Harmonicity, Cognoscibility, Holographic Character and Totalitarianism deduced from its highest properties [10-11].

Absoluteness is the origin of the Universe and its entities by means of partial copying from the initial Universe entity – the Absolute which is hypothetically represented by the concept of Nothing that has several mutual conditions and certain exact formulas (Fig. 9) [10-11]. The Absolute forms the unity of the Universe formalization.

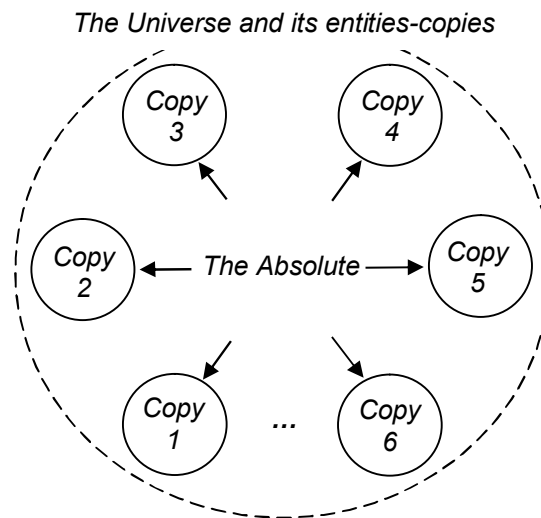


Figure 9 – The Scheme of the Postulate of Absoluteness

Abstractness is the division of the Universe into the system of enclosed invisible Abstract Worlds (AW) in the form of the Universe's Abstract Pyramid (UAP) up to level of the visible Real World (RW) (Fig. 10). The entities of the UAP (abstracts, concepts, and categories) are inserted from the top to the bottom up to the phenomena of the RW and are, in fact, a genetic code (ontology) of the Universe design. The whole knowledge is abstract. Abstractness forms the Universe formalization.

The Harmonicity is general connectivity (Harmony) of entities and the SuperLaw of its increase (harmonization) up to the achievement of the Universe Purpose – the Absolute Harmony of Nothing. Harmonicity is the source and the propulsion device of the entities:

$$\begin{aligned} &\text{Harmony (Entity (State (Time)))} \rightarrow \text{max} \\ &\text{Entity (Condition (Time))} \\ &\text{as part of the Universe} \end{aligned}$$

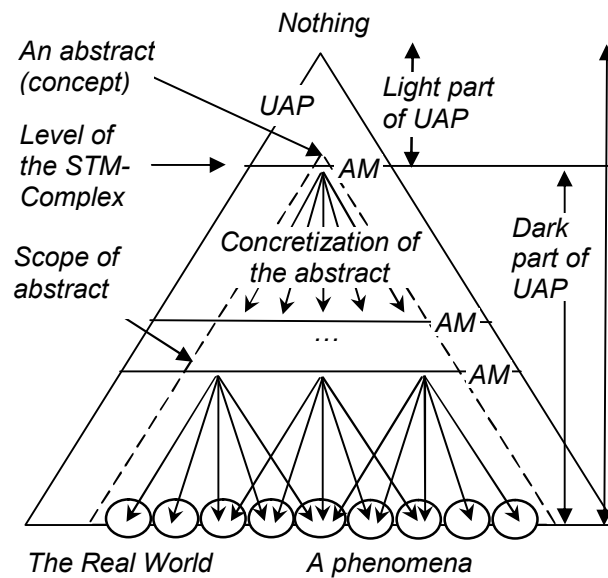


Figure 10 – The Scheme of the Postulate of Abstractness

By the definition of the Universe, Cognoscibility is a basic possibility of full Cognition of each phenomenon by any other phenomenon, beginning with a zero starting ability of Cognition. There is an initial stage of harmonization and the SuperLaw guarantee of achievement of the ultimate Purpose of the Universe. Cognoscibility forms the completeness of the Universe formalization.

By the definition of the Universe, the Holographic Character is the only possible interrelationship of the Universe’s entities, formed by the origin from the only initial entity of Nothing. The Holographic Character forms the consistency of the Universe formalization.

Totalitarianism is a hypothesis of strict execution of concepts of the Universe according to the principle "It is strictly possible only what is allowed". Totalitarianism forms the accuracy of the Universe formalization.

The UM inherits these Postulates, however, it consistently exceeds (virtualizes) the possibilities of the Universe for harmonization of naturally divided parts.

The Harmonious Classification of Phenomena

Internal harmonization generates a natural classification of the phenomena depending on the extent of the access to Time axis that has consistently developed and involved the internal structure of phenomena for harmonization with the external relations (Table 1, Fig. 11).

Table 1 – Harmonious Classification of the Universe Phenomena

| Class № | Class name | Internal structure | Harmonious resource | Harmony Class |
|---------|-------------------------------|----------------------|---|---------------|
| 1 | Chaos (Thermodynamics) | None | Real relations in the Present | Starting |
| 2 | Natural selection (Mechanics) | Available | + Virtual relations on an interval of the Past | Passive |
| 3 | Life (Intelligence) | STM-Complex Copy | + Virtual relations on an interval of the Future | Active |
| 4 | The Highest Reason | Complete STM-Complex | + Real relations on all the axis of Time and multiple Present | Complete |
| 5 | Absolute Nothing | None | No relations | Absolute |

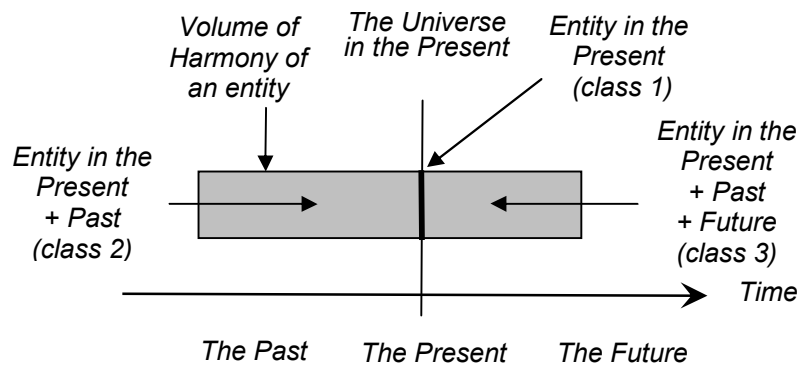


Figure 11 – The General Scheme of Harmonious Classification of Phenomena

The Universal System of Cognition Concepts

The concept of Cognition is deduced from the concept of Relation [] as a cyclic development in Time of an object copy in a subject (Fig. 12). Every cycle consists of 4 stages of advancement of an object copy to a subject: 1) Information, 2) Knowledge, 3) Understanding and 4) Research. Information is a copy of an object on the frontier with a subject, Knowledge is a copy of an object inside a subject, Understanding is a varied agreement (harmonization) of the Knowledge of an object with the other Knowledge inside a subject, Research is an acquisition of additional Knowledge about an object in accordance with the subjective Purpose of cognition development.

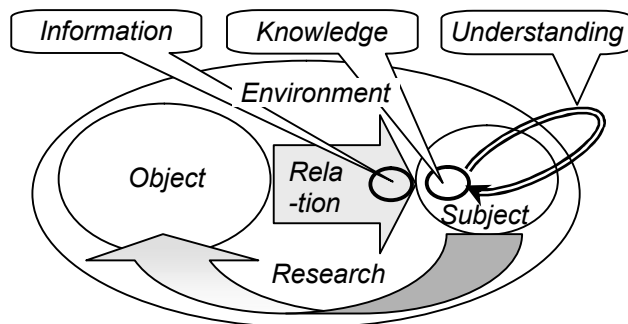


Figure 12 – The General the Scheme of Cognition

Cognition is so far carried out according to the Scheme of Teaching, which is a particular case of Research by means of an indirect copying of object copies through intermediate subjects (Teachers) (Fig. 13).

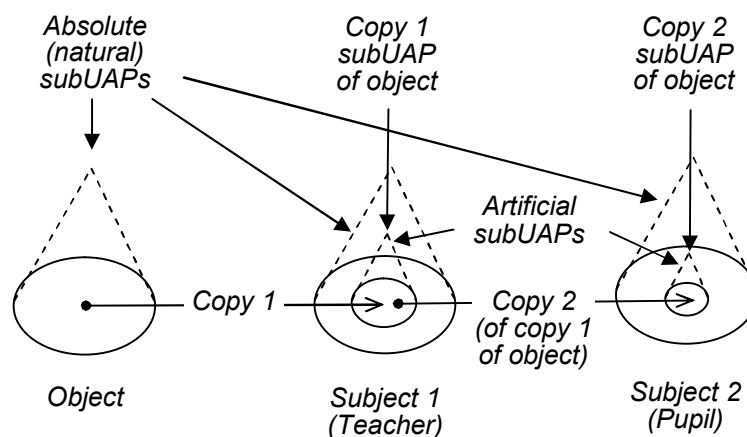


Figure 13 – The General Scheme of Teaching

The Concept of the Universe Virtualization

Definition. Virtualization is exceeding the properties of the Universe.

Definition. A mechanism is the main effect of a certain property.

Virtualization allows to overcome natural internal divisions of the Universe by way of their copying into chaotic parts of phenomena and search for harmonizing decisions on copies with their subsequent realization.

Cognition uses the three main classes of phenomena virtualization:

- Time virtualization,
- Abstract virtualization,
- Harmonious virtualization.

Time virtualization is carried out for harmonization of the Universe’s separated character in time into three distantly related parts: the Past, Present, and Future with the relations only in the Present. In class 3 there is a possibility of virtualization of relations of copies on a limited interval of Time near the Present (Fig. 11).

The phenomena of class 3 (Life, Intelligence) contain the subjective analogs of the STM-Complex that allows active internal virtualization of external objects on such an interval []. The mechanism of Time virtualization (Thinking) has three stages: 1) object observation by the subject and development of its current model on some preparatory subinterval of Time, 2) leading development of the model on a certain future subinterval of subjective time and achievement of the forecast of a target condition of the object, 3) return into the real Present.

Abstraction has two main places of virtualization:

1. Singling out invisible phenomena abstracts (concepts) and their copying into the visible RW (Abstract Cognition);
2. Variation of visible material abstract copies (Abstract Harmonization) for the achievement of the purpose of entities.

Abstract Cognition is carried out by many mechanisms, the basis of which is the SuperLaw of Harmony. There are three main mechanisms that specify classical induction and deduction []. The Dog mechanism restores concepts upwards, the God mechanism deduces concepts downwards from the highest reached concepts, and the God/Dog

mechanism cyclically combines the first two mechanisms in all the problematic places of restoration of the subUAP phenomenon. Abstract Harmonization combines the discovered concepts of the subUAP of the object for the achievement of the purpose of the subject.

Harmonious Virtualization is every admissible under the current conditions rearrangement of all the relations of the subjective copy of the object for phenomenon transfer from the initial into a target harmonious condition для subsequent implementation into the Universe.

The Principles of Genius Education

The UM must become a new scientific and educational standard, the approaching (absolutization) to which allows to improve radically the quality of existence at the expense of attraction of more exact Universe concepts. The model establishes new principles of organization of teaching and educational process as well as didactic materials of educational disciplines, the universality of which follows from the super high level of abstraction and isolation (the presence of a single initial center) of the applied concepts that ensure external and internal consistency of pedagogical theory.

Let us sum up here some initial principles of Cognition:

1. Absoluteness as belonging of entities to the Absolute (the highest degree of current Harmony). It symbolizes exactness and completeness of entities.

2. Abstractness as belonging of entities to the UAP. It symbolizes hierarchy and ontology (origin) of entities.

3. Abstracting as singling out the highest abstracts of entities. It symbolizes genealogy (ontology) and centralization of entities by means of its definition.

4. Concretization as singling out derivative entities in the UAP from a certain entity. It symbolizes an inferior part of the UAP (subUAP) of entities.

5. Harmonicity as coherence of entities. It symbolizes the presence of three parts of entities: origin (genealogy, ontology, history, purpose), definition (essence) and inheritance (consequence, result).

6. Harmonization as the SuperLaw of aspiration of entities for an unlimited Education and development of relations.

7. Harmony as a Universe quantity that determines the potential (possibility) of harmonization of entities.

8. Cognoscibility as a possibility of unlimited complete copying of entities from the initial zero level of the development of subjects. It symbolizes unrestrictedness of coherence and development of subjects.

9. Structural (qualitative) methods as initial priority methods of cognition. They symbolize secondary character of the other methods of cognition, as entities are no more than enclosed structures of relations.

10. An entity as a part of the Universe singled out by a certain relation as a single unit. It symbolizes the variability of entities within the framework of internal division of the Universe.

11. A relation as a copy (and copying) of one entity in the other entity. It symbolizes variability of entities as partial copies of other entities.

12. A property (concept, quality) as a structure of relations of entities. It symbolizes variability of properties of entities within the framework of their definitions.

13. A direction is an asymmetry of properties from some entities to the others. It symbolizes irreversibility of processes of entities.

14. Entity as an infinite enclosed structure of properties. It symbolizes variability of entities depending on their internal relations.

15. Transparency (fullness) of relations as an extent of absoluteness of entities. It symbolizes the degree of absoluteness of entities.

16. Purity (whiteness) of relations as an extent of the internal consistency of entities. It symbolizes the degree of development stability (harmonization) of entities.

17. Homotropy of entities as an extent of unity of properties. It symbolizes partial homogeneity (identity) of Universe entities and their copies (descriptions, formalizations).

18. Finiteness of abstract entities. It symbolizes the possibility of their complete cognition by the finite subjects.

19. STM-structure of time entities (below the STM-Complex) of 3 Complexes: Space, Time and Matter (Objects and Processes). It symbolizes the corresponding origin and structure of entities.

20. Class character of component structure of time entities. It symbolizes the general internal form of time entities of 8 classes of components.

21. Infinite enclosed character of time entities. It symbolizes possibility of absolute cognition of the Universe by every subject in principle.

22. Motion as a change (development) of entities. It symbolizes possibility of achievement of absolute Harmony of entities in principle.

23. Regularity as a direction of motion of entities. It symbolizes the presence of mechanisms of achievement of absolute Harmony of entities.

24. Purposefulness as a general direction of motion of entities. It symbolizes the presence of the finite state of motion that is searched for.

25. Process character as a structure of time entities in Time. It symbolizes a single structure of processes of time entities.

26. The centrality of an entity in the form of (an abstract) definition. It symbolizes the presence of an abstract beginning of every entity.

27. Variability as the presence in entities external and internal movements that change their structure. It symbolizes the basic mechanism of Harmony change of entities.

28. Determinism (passivity) as the dependence of entities from the incoming external relations. It symbolizes the influence of environment.

29. Freedom (activity, independence) as the dependence of entities from internal relations. It symbolizes independence of entities.

30. Regularity (homogeneity, cyclicity, repetition) as the equality of copies in the Complexes (STM). It symbolizes the equivalence of the results of harmonization of entities in some parts of the Complexes.

31. Inaccuracy as incompleteness (not white copying) of copies. It symbolizes the divergence of the copy with the original.

32. Virtuality as the excess of the copied properties of entities in the copies. It symbolizes the overcoming of existing problems on the copies of those problems.

33. Closure as finiteness of entities, their ancestors and descendants by a part of the UAP. It symbolizes the integrity (exactness, absoluteness) of entities in the corresponding closures of the UAP (subUAP of entities).

Similar principles are infinitely generated by the UM and are set forth in a highly abstract interpretation for the support of compatibility with the Model, but they have fully applicable expressions which must be formulated by the pedagogical Science that is responsible for it.

For example, failure to observe the principle of closure of objects leads to heterogeneous cognition and domain structure of knowledge with poor coherency (Fig. 14) which limits the distribution of logical conclusions by the domain borders and reduces harmonizing ability of a

subject in principle. So we have a limited system of inexact concepts leading during multistep logical processes to deviations from absoluteness up to opposite decisions, the examples of which overfill our reality.

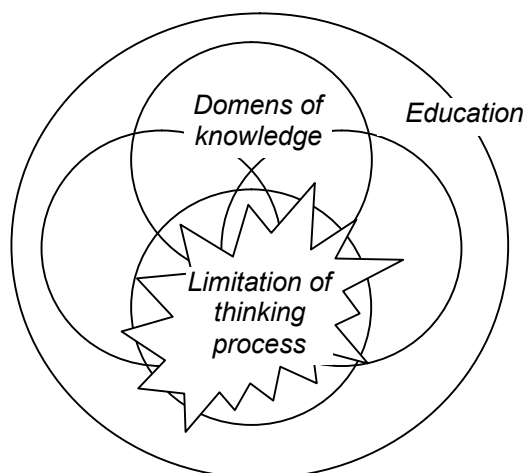


Figure 14 – The Scheme of Limitation of Thinking Processes by the Heterogeneity of Education

The Initial Scheme of Application of the Universal Principles

The universal principles are quite practical right now. Their realization must take place at all education levels, the key of which are:

- experts developing curricula of specialities and standard programs of academic disciplines;
- teachers of academic disciplines developing work programs of academic disciplines and methodological and didactic materials to them;
- students learning the UM and the systems of universal concepts of a special academic discipline.

Work programs and methodological and didactic materials are subject to universalization in the following general order:

1. To reconsider elementary coherent portions (paragraphs) of a teaching material according to each of the specified principles and to find relevant universal concepts. To express these portions in the new system of concepts with the help of an available semantic opportunity. Moreover, it is necessary to use terminology familiar to students whenever possible.

2. It is often the case in scientific and pedagogical literature that some sense of portions is omitted by default, then it must not go into the new version of the teaching material, and it should be openly declared about it in the text in order to avoid the assumption that it will be defined further.

3. To repeat items 1-2 for the more general portions of teaching material – sections, topics, chapters, etc.

4. To harmonize in the sense of the universal principles the structural and logical scheme of an academic discipline and to repeat items 1-3.

5. To harmonize in the sense of the universal principles the intersubject relations of an academic discipline with the relevant academic disciplines.

6. To develop universalization of academic disciplines as far as the universal principles are introduced.

It is expected that use of the universal principles will allow to increase the perception of a new teaching material as far as students develop standard universal informative mechanisms forming the system of effective educational reflexes that make cognition and thinking genius.

Owing to the high level of abstraction of concepts such work is recommended to be done under the supervision of expert specialists in the UM. As far as the experience is gained, more concrete guiding methodological materials can be created.

Список литературы

1. Sosnitsky A. Artificial Intelligence and unresolved scientific problems. / A. Sosnitsky // Intern. Journal «Information Theories and Applications». – Sofia : 2011. – Vol. 18, № 1. – P. 82-92.
2. Sosnitsky A. The Conception of Abstract Programming / A. Sosnitsky // Sino-European Engineering Research Forum. – Glasgow, UK : 2008, Vol. 1. – P. 34-40.
3. Sosnitsky A. Harmonious Foundations of Intelligence / A. Sosnitsky // Communications of SIWN. – Liepzig : 2009. – Vol. 7. – P. 66-72.
4. Sosnitsky A. Conceptual programming: program as a copy of subject domain / A. Sosnitsky // Intern. Conf. on Theoretical and Applied Aspects of Program Systems Development. – Kiev, 2007. – P. 305-311.
5. Sosnitsky A. Beginnings of the Universe Model and Deduction of Initial System of Information Concepts / A. Sosnitsky // Intern. Journal “Information Theories & Applications”. - Sofia : 2012. – Vol. 19, № 1. – P. 56-85.
6. Сосницький О. В. Універсальна метафізика й нова парадигма сучасної Науки / О. В. Сосницький // Економічний універсум: метафізика пізнання. Ч. 1. Матеріали Регіональної науково-практичної конференції до 80-ї річниці від заснування БДПУ. – Бердянськ, БДПУ, 2012. – С. 49-72.
7. Сосницький А.В. Универсальная модель и система новых научных парадигм / А.В. Сосницький // Межд. конф. «Современная информатика: проблемы, достижения и перспективы развития». - Киев, ИК АНУ, 2013. – С. 71-73.
8. Указ Президента України від 17 квітня 2002 року N 347/2002. Національна доктрина розвитку освіти [Електронний ресурс] / Л. Кучма. – 2009. – Режим доступу : <http://zakon4.rada.gov.ua/laws/show/347/2002>.
9. Щодо проекту Закону України «Про вищу освіту» (нова редакція). Лист МОН №1/9-796 від 08.11.2010 р. [Електронний ресурс] / – 2010. – Режим доступу : http://osvita.ua/legislation/Vishya_osvita/10496/.
10. Доповідь Міністра освіти і науки Д. Табачника на підсумковій колегії МОН [Електронний ресурс] / Д. Табачник. – 2010. – Режим доступу : www.mon.gov.ua/education/higher/topic/proekt.doc.
11. Основні напрями модернізації структури вищої освіти України [Електронний ресурс] / В. Шинкарук. – 2010. – Режим доступу : http://www.ond.vlaanderen.be/hogeronderwijs/bologna/links/documents/article_Shynkaruk_ukrainian.pdf.
12. Моделі організаційних систем відкритої освіти: монографія [Електронний ресурс] / В.Ю. Биков. – 2008. – Режим доступу : <http://www.ime.edu-ua.net/cont/b.pdf>.
13. Сосницький А. Реформа украинского национального образования, основанная на мышлении / А. Сосницький // Intern. Journal “Information Technologies & Knowledge”. – Sofia : 2012. – Vol. 6, № 1. – P. 35-45.
14. Сосницький А. Концепция реформы системы национального образования, основанная на мышлении / А. Сосницький, В. Хоменко, Д. Кравченко, М. Сосницькая, Н. Сосницькая, Н. Кравченко // Intern. Journal “Information Technologies & Knowledge”. – Sofia : 2012. – Vol. 6, № 3. – P. 283-299.
15. Сосницький А.В. Искусственный интеллект и радикальная реформа современной Науки / А.В. Сосницький // Искусственный интеллект – 2011– № 1. – С. 91-105.
16. Сосницький А.В. Искусственный интеллект и Универсальная гармоническая Методология Познания / А.В. Сосницький // Искусственный интеллект. –2011. – № 2. – С. 70-83.

References

1. Sosnitsky A. Artificial Intelligence and unresolved scientific problems. / A. Sosnitsky // Intern. Journal “Information Theories and Applications”. – Sofia : 2011. - Vol. 18, Number 1. - pp. 82-92.
2. Sosnitsky A. The Conception of Abstract Programming / A. Sosnitsky // Sino-European Engineering Research Forum. - Glasgow, UK : 2008, Vol. 1. - pp. 34-40.
3. Sosnitsky A. Harmonious Foundations of Intelligence / A. Sosnitsky // Communications of SIWN. – Liepzig : 2009. - Vol. 7. - pp. 66-72.

4. Sosnitsky A. Conceptual programming: program as a copy of subject domain / A. Sosnitsky // Intern. Conf. on Theoretical and Applied Aspects of Program Systems Development. - Kiev, 2007. - pp. 305-311.
5. Sosnitsky A. Beginnings of the Universe Model and Deduction of Initial System of Information Concepts / A. Sosnitsky // Intern. Journal "Information Theories & Applications". - Sofia : 2012, Vol.19, Number 1. - pp. 56-85.
6. Sosnitsky O. V. Universal'na metafizika j nova paradigma suchasnoji Nauki / O. V. Sosnitsky // Ekonomichnij universum: metafizika piznannja. Ch.1. Materiali regional'noi naukovo-praktichnoi konferencii do 80-noi richnitci vid zasnuvannja BDPU. – Berdjansk, BDPU, 2012. – s. 49-72.
7. Sosnitsky A. V. Universalnaja model' i sistema novih nauchnih paradigim / A. V. Sosnitsky // Mezhd. konf. "Sovremennaja informatika: problemi, dostizhenia i perspektivi razvitia". - Kiyv, IK ANU, 2013. – s. 71-73.
8. Ukaz Prezidenta Ukraїni vid 17 kvitnya 2002 roku N 347/2002. Natsional'na doktrina rozvitku osviti [Yeletronnij resurs] / L. Kuchma. – 2009. – Rezhim dostupu : <http://zakon4.rada.gov.ua/laws/show/347/2002>.
9. Shchodo proyektu Zakonu Ukraїni "Pro vishchu osvitu" (nova redaktsiya). List MON №1/9-796 vid 08.11.2010 r. [Yeletronnij resurs] / - 2010. - Rezhim dostupu : http://osvita.ua/legislation/Vishya_osvita/10496/.
10. Dopovid' Ministra osviti i nauki D. Tabachnika na pidsumkoviy kolegii MON [Yeletronnij resurs] / D. Tabachnik. – 2010. - Rezhim dostupu : www.mon.gov.ua/education/higher/topic/proekt.doc.
11. Osnovni napryami modernizatsii strukturi vishchoi osviti Ukraїni [Yeletronnij resurs] / V. Shinkaruk. – 2010. – Rezhim dostupu : http://www.ond.vlaanderen.be/hogeronderwijs/bologna/links/documents/article/Shynkaruk_ukrainian.pdf.
12. Modeli organizatsiynikh sistem vidkritoї osviti: monografiya [Yeletronnij resurs] / V.YU. Bikov. – 2008. – Rezhim dostupu : <http://www.ime.edu-ua.net/cont/b.pdf>. Sosnitsky A. V. Iskusstvennij intellect i radikal'naya reforma sovremennoy Nauki / A. V. Sosnitsky // Iskusstvennij intellect – Donetsk, 2011, №1. - s. 91-105.
13. Sosnitsky A. Reforma ukrainskogo natsional'nogo obrazovaniya, osnovannaya na myshlenii / A. Sosnitsky // Intern. Journal "Information Technologies & Knowledge". - Sofia : 2012, Vol. 6, No. 1. - pp. 35-45.
14. Sosnitsky A. Kontseptsiya reformy sistemy natsional'nogo obrazovaniya, osnovannaya na myshlenii / A. Sosnitsky, V. Khomenko, D. Kravchenko, M. Sosnitskaya, N. Sosnitskaya, N. Kravchenko // Intern. Journal "Information Technologies & Knowledge". - Sofia : 2012, Vol. 6, No. 3. - pp. 283-299.
15. Sosnitskiy A. V. Iskusstvennyy intellekt i radikal'naya reforma sovremennoy Nauki / A. V. Sosnitskiy // Iskusstvennyy intellekt – Donetsk, 2011, №1. - s. 91-105.
16. Sosnitsky A. V. Iskusstvennij intellect i universal'naja garmonicheskaja metodologiya poznaniya / A.V. Sosnitsky // Iskusstvennij intellect – Donetsk, 2011, №2. - s. 70-83.

RESUME

A.V. Sosnitsky

Intellectualization of National Education System through Universalization

The modern national System of Education based on Knowledge has, essentially, exhausted its potential owing to the limited biological ability of people to perceive new knowledge, that now and in the long term leads to multiple social problems and conflicts.

Any further development of national Education should be based on the other fundamental principles that, first of all, make the resources of people's thinking more active. But there is no adequate formal theory of animate (intellectual) phenomena for the calculation of such processes.

This paper shows the method of solving these problems by the application of the Universe Model for a substantiated deduction of the concept of Education and absolutization (making adequate) of the whole system of derivative abstracts.

The Reform of the national educational System of four consistently developing stages is offered, the final of which is directed at making people genius by the achievement of maximum thinking by means of an approach to absolute properties of the Universe.

The main principles of genius Education and Upbringing are deduced, which at professional pedagogical concrete definition can already be used today as the basis of basically new organization of Educational processes and didactic materials to them with the use of available electronic environment and means of training.

The article entered release 20.12.2013.