PEDAGOGICAL SCIENCES

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THE DIALECTICAL APPROACH TO THE FORMATION OF RATIONAL THINKING

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Abstract
The article reflects the dialectical method of formation of the system and critical thinking of the subjects of the educational process as a necessary condition for the rational development of the surrounding world.
Keywords: dialectics, the theory of knowledge, the concept.

Introduction: The modern society is characterized as a postindustrial one. This is a kind of society with innovative economics and high efficiency of labour. Following the objective laws of the development of the society, the postindustrial society has evolved into the concept of an information society. The leading position in the structure of labour belongs to the processing of information, herewith, the main driving force of economics is the human intellect, highly educated people. Obviously, the problem of personality, its identity and the possibility of manipulating it under the circumstances of new information technologies, the question of the capabilities of the knowledge boundaries constitute the acute problems of the modern civilization.

It is evident that under the modern conditions, the sphere of education takes the key positions in the development of innovative economics.

" …. where people feel clamped in the grip of inexorable contradictions and forced to solve them, whereas the old, experienced for centuries ways to solve them find all their helplessness" [2].

It is necessary to change the way of thinking, the way of the world cognition, as the way of thinking determines the way people live. This means it is necessary to transform consciousness, i.e. to transfer thinking from the level of reason to the level of mind.

Materials and methods: Thinking reveals itself only in the acts of an objective shift in the ways of human activity, therefore, in the acts of the shift, in the change the shape of the very thing, in the disclosure of its new parameters and characteristics [4].

Thinking develops a common approach to the study of various objects and phenomena, and this is nothing more than a method. The conditionality of the results of cognition by the position, state and cognitive tools of the subject is an obvious fact.

Unfortunately, it is difficult not only to destroy, but even to shatter the pivotal dogma about the purpose of vocational education, which is seen only in the formation of purely professional skills to master a purely practical action.

The issue of the correlation of thinking to being is the issue of correlating the logic of actions to the logic of things. However, there is one more problem left: nature is governed by the need, whereas the person is capable of free choice (between the truth and an error, between the good and the evil), otherwise there would be no need for wisdom. And in this light, vocational education finds its helpless floundering in the networks of well-established stereotypes. Regarding education, this arbitrariness is expressed through strictly imposed curricula, which are sinking in facts and details, through strictly imposed forms, which are detached from the content, and through destructive and meaningless control.

Undoubtedly, the school is designed primarily to form the knowledge of students. Knowledge is learned information. To understand the information means to operate it fluently, just like the thing you own. The main condition to assimilate the information is to understand it. To make the thinking of an object free, or, what is the same, to be free within this object, it is necessary to broaden the semantic space of any object, i.e. catch its general logic. This possibility and necessity lies in the dialectical method of cognition, which is an inextricable unity of formal and dialectical logic.

Our school is very far from the real process of the formation of thinking. As G. Hegel said in the 18th century, " ... and without mastering the thing, it is possible to play with words. But blame is not on the word, but on

deeply flawed, vague, meaningless thinking. Just like a true thought is the subject, so the word is, when being applied by the true thinking. To the extent the intelligentsia is filled with the word, it assumes the nature of the subject. Memory, the way it exists, is only an external way, a unilateral moment of the existence of thinking. The transition to thinking is ... the identity of the mind and the mode of existence" [1].

It is the sphere of education that urgently requires an immediate change in the way of thinking, a fundamental change in the cognitive tools of the subject, without which the practical action itself, which professional education is so concerned about, will not be effective.

The power of thinking as a creative ability is measured by the ability to recognize unity in a variety of mutually contradictory facts. To see "unity in diversity" is the power of dialectical thinking.

Intellectual labor, as well as physical, has all the features of labor in general. This universal feature is mediation. With physical labor, this mediation is provided by the tools of labor. With intellectual work, it is a method of thinking. In other words, in the educational process it is only necessary to bring out a method, a common approach to the knowledge of the whole and diverse world. Consequently, the learning process should be based on dialectics as a science about the general laws of thought. However, the most important advantage of dialectics lies not only in abstraction (transformation of reality into thought), but also in the laws of practical implementation of thought into reality, i.e. abstraction – into practice.

Dialectics acts as both logic - the science of thinking, and as the science of theoretical and practical mastery, the development of the world by a social person.

The person using categories of dialectics as sharply perfected tools of critical and system thinking receives a reliable method of innovative (rational) transformation of the world. If we are seeking universal knowledge, "for all occasions", then the best option is the acquisition of knowledge about methods of obtaining knowledge, i.e. we should talk about the cognition in general.

Since the surrounding world has a system, the processes that reflect the world in our minds in the form of ideal images, even more so have a clear pattern and system. Therefore, the process of thinking fits into the algorithm.

The contradiction between the essence of rational (holistic, systemic) knowledge, and the formal set of competencies that a graduate should master, in accordance with educational standards, is the most fundamental, affecting the deep foundations of the formation of intelligence. Dialectics is a science of

universal communication. It is this universal connection which is destroyed if the educational process is concerned with the implementation of standards. Hegel's system: from the concrete to the abstract, and back to the concrete, but at a qualitatively new level, this is the algorithm based on the mind of knowledge. The subject of cognition, being torn into competences, is an empty abstraction. Any educational curricula consolidate this abstraction. A person who claims to be a thinking person must ascend from the abstract to the concrete – a consistent tracing of the relationship of particularities ('abstract' moments) with each other, objectively distinguished as part of the whole.

No matter how firmly the subject is held by the word and representation, and algorithms of interrelations of its elements, which is what all efforts of teachers are spent on, it will be presented to the students who are separated from the most objective reality through mysteriously isolated science that is observed and fixed in the modern educational process. Therefore, the student's mind does not form a single system of concepts, and since the concept is a tool of knowledge, our graduate is not able to learn the world and himself, therefore, is not able to innovatively transform the socio - economic sphere, especially, to create a future prosperous society.

The authors of this article, basing on a deep theoretical analysis and many years of pedagogical practice in higher school, put forward as a theoretical and methodological basis for the formation of systemic thinking the following concepts:

1. Contradiction is a universal principle, and as such it must be understood in pedagogy and rational thinking. But contradiction is a generating beginning in general: any thing at the start has a corresponding contradiction in the composition of its premises and conditions. And the essence of the development is that the thing by its fact of appearance drives itself to its end. This is precisely because the opposites, which are inherent in things and manifesting themselves as identities at the beginning of existence, turn into the state of contradiction in the process of existence and development of things.

2. Opposites, which make up the essence of any thing, pass into a state of contradiction, because the external conditions of their existence change. A cliché: with the change of the conditions, the thing changes its quality characteristics to the opposite. In this linkage, by the way, is the cunning of skills, the formation of which is the concern of education officials. Man does not take into account this simple dialectical pattern: under the changed conditions, man continues to act according to the scheme, which in his mind is brought to automatism as applied to the standard situation. Actually, all man-made disasters are caused by this circumstance.

3. The arising contradictions are resolved through the actualization of the opposite. This theoretical message follows from the third law of dialectics: denial, or preservation of the original basis. What was denied at the previous stage of development becomes in demand, but at a qualitatively new level.

4. This conceptual principle follows directly from the previous one. In order to resolve the contradiction, we need to identify the concept that is contrary to what caused the contradiction. Here we must turn to the formal logic. This basic knowledge of logic refers to such a concept as a form of thought and generic - specific relationships between concepts. Our thought needs to hold opposing concepts, which are in respect of subordination in relation to the generic. In other words, solving the contradiction, the consciousness does not spread across the boundless field of scattered facts ("go there – I do not know where, bring something – I do not know what"), but acquires a purposeful search. This is the main sign of rational thinking. Intelligence defines the concept, revealing the generic, and finds the opposite concept. This sought opposite concept is the basis of the resolution of contradictions.

Laws, according to which universal thinking appears, functions and develops, are studied by the science of logic. Every science is applied logic. During the reverse movement of thought: if there is no logic, there is no science, therefore, there is no educational subject. The conclusion: the modern educational process should be organically combined with logic, i.e. teach students to think.

Logic is the second stage of cognition. The first stage is perceptual knowledge. In the first stage, the world is given to man, but not being learned. The world is being learned in the second stage. The idea has two opposite forms: the concept and the judgment. To count everything, ten digits are enough; to describe everything, thirty-three letters are enough; and to know everything, two forms of thought are enough.

What does 'to think' mean? To think is:

1. to analyze the concept,
2. to synthesize concepts, i.e., to formulate judgments,
3. organically combine formal and dialectical logic and theory of cognition.

Formal logic establishes only external unity of opposites of an object or a phenomenon, dialectical logic reveals the essence, i.e. establishes internal unity of opposites. As the reader sees, we already operate with philosophical concepts (categories), otherwise, there is no sense to talk about the transformation of consciousness. Consciousness begins with generalization.

In the dialectic of the stages of generalization, the first, the lower, level is for the language. A word is an elementary particle of a language. The word increases labour productivity in the reflection of the world billions of times. But people, moved by the universal law of economy of time, have to climb up to the second level of generalization, that is of science. People in this stage operate with the concepts.

Cognition, beginning with the analysis - fragmentation, brings thinking closer to the object endlessly and eternally [3]. And the more detailed the fragmentation is, the more clearly there is a need for its opposite – the ultimate generalization – philosophy. So, the third, the highest level of generalization is philosophical. At the level of philosophy, all sciences are brought to a common intersection - the universal features of the surrounding world: the structure (the unity and struggle of opposites), the movement (transition of quantitative changes in quality and vice versa), the development (the denial of the denial), the relationship (preservation of the original basis).

The concept is the basic form of thinking. Any thought is expressed in terms. The second form of thought – a judgment - consists of concepts in order to merge in the concept, revealing its individual sides, characterizing it. The concept is simultaneously the foundation and the crown of thought, the source material and the final result of judgments. The concept is what the thought is based on and what is built in the course of thinking.

The concept is the basic and the highest form of thinking, providing the reflection fixed by the word in consciousness allocated by generalization and abstraction of essential signs of subjects, the phenomena of the material world, their properties and the relations. Critical thinking is formed on the basis of systemic thinking. Establishment of generic-specific relations in the process of compiling a collection of concepts is, in fact, the formation and manifestation of systemic thinking. When resolving contradictions (problems), the human intellect is not able to escape from the captivity of multivariate solutions without resorting to generalization and limitation of concepts. These operations with concepts are in the basis of the collection of concepts.

Each new concept is derived from the volume of the previous one, then its content is revealed, and the volume is set. The division of the concepts is brought to the single unit, which is reflected with the illustration of examples, such is the algorithm of compiling the collection of concepts. Thus, the collection of concepts via a direct link limits the concept, and with the feedback generalizes them, and as a result, in consciousness the whole system of concepts is formed.

Any concept, reflecting the world around us and, therefore, obeying the laws of dialectics, consists of two opposites (the law of unity of opposites): content – generic – quality and volume – specific – quantity. Understanding the essence of the concept, its position in the system of sciences is reflected in the collection of concepts. To define a concept means to reveal its content and volume. To reveal the content of the concept, it is necessary to:

1. find the corresponding generic concept (a broad concept).

2. determine its essential features that distinguish the desired concept from other species that make up one genus.

The most difficult operation in identifying the scope of the concept is to establish the basis of division of the concept. Unfortunately, the current textbooks, programs share a common logical error or a lack of division of concepts, or its wrong selection.

Here is a fragment from the collection of concepts in "Epistemology".

Concept	Content	Volume
Epistemology (the theory of cognitin, gnoseology)	From Ancient Greek □πιστήμη – "scientific knowledge, science", "knowledge" and λόγος "word", "speech". 1. A philosophical and methodological discipline, which explores knowledge as such, its composition, structure, functioning and development. 2. A philosophical discipline, the subject of which is one form of knowledge which is scientific knowledge. 3. A branch of philosophy, in which the problems of nature and possibilities of cognition, the attitude of knowledge to reality are studied, the general prerequisites of cognition are investigated, the conditions of its authenticity and truth are revealed. 4. The philosophical doctrine about the truth and how it could be achieved [5]. 5. A branch of philosophy that studies the nature, structure, laws and methods of the cognition process, the problem of truth and other issues related to comprehension of information about the world.	I. By correlation of subject and object in cognition: 1.1. classic epistemology 1.2. neo-classic epistemology II. By criteria of truth (the criteria of knowledge): 2.1. the ontological theory of knowledge 2.2. logical epistemology 2.3. psychological theory of knowledge III. By the nature of the determination of consciousness: 3.1. platonic epistemology 3.2. immanent epistemology 3.3. transcendental epistemology IV. By philosophical views on the boundaries of our knowledge: 4.1. ontological epistemology 4.2. skeptical epistemology 4.3. critical epistemology [6]

The indicator of the depth of scientific penetration into the essence of the subject is the content and scope of the concept. Hegel: "The concept needs to be derived, and not taken arbitrarily or mechanically, without "revealing", or "assuring", but through arguing based on the contradictions ... they are the development» [1].

Contradiction shapes the whole field of the educational subject activities. Therefore, it is important to identify the initial contradiction in the teaching of any educational subject beforehand, fixing not only the boundaries

of its qualitative certainty, but also the inner nature of this quality. Only from here it is possible to move on the way of concretization of the concept.

Theoretical thinking, which considers the concept as something different from itself, as a special subject of consideration, subject to change in case of need and even to replace completely, acquires a calm and theoretical attitude to the contradiction. It sees in contradiction not its collapse, not its death, but only the collapse and death of some other, some subject different from itself - and thus its own life, as E. V. Il'enkov accurately notes in his book "Philosophy and Culture" [2].

If the methodology bypasses the process of introducing students in the analysis of the conditions of origin of theoretical concepts, then this method of work leads to a descriptive fact. It is necessary to be able to move from externally empirical definitions of a subject to its theoretical definitions, in other words, to reduce external contradictions to internal contradictions.

Objective phenomena are "derived" from each other in the sense that the development of things naturally leads to a new state of contradiction. A thing in thinking is evaluated through the form of its real interrelations, causes and conditions.

The universal laws of change of nature by man are the universal laws of nature in accordance with which a person can only successfully change it. Their "specificity" lies precisely in their universality, that is, in the fact that they are the laws not only of subjective activity, but of movement, and objective reality, and subjective human activity.

The current state of science considers modeling as an effective means of idealization, since only the ideal is directly related to the truth. A practical activity with a thing is not an activity with its image, with its idea, with its law. On the contrary, this activity is just oriented by knowledge of the idea of things. But the fact is that this activity, while changing the thing, changes also the idea, i.e. knowledge of the law of the thing. The empirical content of knowledge reflects this fact, the available state of things. This knowledge by the objective status acts only fixing the facts. But theoretical activity works with the ideas themselves. It explores the logic of the development of the essence of things, so it includes the content of the facts, explains them through the essence. Thus, it consciously, expediently and *purposefully* changes idea of a thing, expressing through it essential definitions of existence and thereby its possible forms. *Therefore, the ideal activity of thinking changes images of things, makes a shift in the composition of the ideas themselves – and through these ideas determines the nature of subsequent practical activities. The change of things and change*

of their images are two opposite but assuming each other forms of activity which have behind them, in the basis, a form of their direct unity, identity.

The educational system involves the ability of the subject of pedagogical activity in any substantive form to detect a form of the universal and make it the basis, the backbone of the movement of the subjectivity of the student in agreement with the specific subject content. The essence of a thing is realized only in the movement of theoretical abstractions. Modeling of dynamical systems is the movement of theoretical abstractions. The theory only exists where there is a consciously held desire to understand all the special phenomena as the necessary modifications of the same concrete universal substance. Scientific modeling is based on the identification of the universal substance, in other words, when starting to model the system, we are obliged to find the beginning of the thing, that is, the universal, which has in its premises the potential for transformation into a special one.

We give an example of the derivation of the concepts of "RNA. Transcription" by means of system modeling.

The positivist approach of the introduction of the basic concepts of molecular biology: DNA, RNA in the student's mind is opposed to the dialectical approach - the derivation of the concept.

We will agree that the chemical composition due to the function of the information molecule we have already derived. It is a polymer consisting of monomers (nucleotides) bound by strong chemical bonds. Removal of information is carried out through the formation of hydrogen bonds between the information molecule and the corresponding nucleotides. It is hydrogen bonds that have a contradiction: on the one hand, the ease of their formation makes it possible to remove information from the information molecule, and on the other hand, this ease turns into a negative side: hydrogen bonds with random molecules of various substances distort information. So, we identify the contradiction of informational molecules: the possibility of formation of hydrogen bonds is the key to the implementation of its functional determinism; on the other hand, it is the open possibility of hydrogen bonds formation that violates the informational essence of the information molecule. We resolve the contradiction through the actualization of the opposite: we replace the open hydrogen bonds with closed ones. We close the information molecule with the same molecule. Thus, we obtain a two-strand molecule. But again, "according to the laws of the genre", i.e. dialectics, the resolution of the contradiction generates a new contradiction: the information molecule has lost its ability to transmit information, because hydrogen bonds have been closed. The contradiction of the double-stranded molecule is resolved via single-stranded.

Evolution did not throw on the "dump of evolution" a single-strand molecule, but only transformed it, raising to a qualitatively new level (the dialectic law of conservation of the original basis). Since the idea of an information molecule has been embodied in two opposites, there is a need to distinguish them in terms. Specifying the chemical composition of two molecules we call them: deoxyribonucleic and ribonucleic acids. The nature required two opposite molecules, performing two opposite functions: the first one stores information due to closed hydrogen bonds, which corresponds to the computer hard drive, and the second molecule serves as memory, with which you can carry out any operations associated with the transfer of information in living systems. Here we will examine the position of DNA and RNA in ontogeny and phylogeny. RNA is primary in phylogeny whereas in DNA is in ontogeny while opening for a short time to rewrite the information on RNA. So, we have derived the concept of *transcription*.

Conclusions: Similarly, all concepts (knowledge) of any discipline, including humanities, are derived. It is obvious that knowledge, not ideas, is formed in the student's mind. This means that a person acquires the freedom of movement of thought in the subject, he brings new knowledge based on the derived laws of nature and thinking. This means that we have achieved the ideal of rational thinking on which the information society is based.

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PHILOLOGY AND LINGUISTICS

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THE SYSTEM OF VISUAL-COGNITIVE STYLISTIC DEVICES AND TROPES AS A NEW FORM OF GLOBAL AND SUPRAETHNIC COMMUNICATION

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Abstract
The aim of the current study is to prove that visual-cognitive units a) can be defined as tools of emotionality and expressiveness in the text, b) minimize the loss of the impact provided by the verbal part of an English text that has been created for global audience of non-native speakers of English. The performed analysis has shown that the use of these visual-cognitive units depends not on the specifics of the linguistic code of the written message but on the recipient. The visual-cognitive units of this system are based on the principle of stylistic devices and tropes, which can be defined as linguistic-cognitive units that make it possible to appeal to the recipient's emotions and to broadcast information in the required axiological key. The analysis reveals the genesis of a new integrated visual communication system which possesses a