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PSYCHOLOGICAL AND PEDAGOGICAL STUDIES: THE PROBLEM OF METHODOLOGICAL PRINCIPLES DEVELOPMENT

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The essence of pedagogical methodology and its components is widely investigated in the article. The system of basic methodological principles (identity of opposites in the infinite, ascension from abstract to concrete, dialogue interaction, differentiation) is substantiated. Also the main contradiction in education (between needs of society (“necessary”) and the needs of individuals (“I want”), taking into account their physical and psychological possibilities (“I can”) is specified. The method of derivative contradictions determination from the main one is being offered.

Key words: higher education, pedagogical methodology, principle, contradiction.

Introduction

Reviewing candidate and doctoral dissertations on pedagogical themes we can notice that the researchers do not define or substantiate the research methodology of a subject.

Regardless of the dissertation theme, aim and objectives, the same approaches (axiological, acmeological, synergetic, cultural, etc.) are rewritten from one thesis to another. It is difficult for the academic degrees seekers to establish and even more to substantiate the existing contradictions topical for the study that encourage the researcher to find rational ways to solve them.

The aim of the study

In the article we will attempt to establish the essence of pedagogical methodology and to show how contradictions of a particular pedagogical phenomenon are revealed and how the research methodology is selected.

Theoretical framework and research methods

It is well known, that philosophy as the science of general laws of nature, society and thinking development, among others, performs two important

functions: methodological and axiological (spiritual and value). According to the dictionary, methodology (from method and ... logics) is the doctrine of the structure, logical organization, methods and means of activity. In addition, the methodology of science is the doctrine of the formation principles, the forms and ways of scientific knowledge acquisition.

According to scientists' points of views, modern methodology consists of the following main parts: general ontology of system and structural analysis; the theory of activity; the theory of thinking; the theory of science; semiotics (Shchedrovyskyi, 1993, p. 67).

Well-known scientists such as Danylov, Gmurman, Kraevskyi and others highlighted the questions of pedagogical methodology. Danylov believes that the methodology of pedagogy study subjects may be pedagogical knowledge itself, the ways of its obtaining, the conditions for its introduction into practice and defining of pedagogy subject.

Results

Shubynskyi (1989) distinguishes four aspects of the methodology of pedagogy: to study the problems of pedagogical knowledge, science, trends of their development; to study the subject of pedagogy and its

categorical apparatus; to investigate the logics and the methods of research, the process of knowledge acquisition; to introduce the acquired knowledge.

According to Shubynskyi (1989), “the methodology of pedagogy is a definite system of norms, principles of theoretical and practical activity and knowledge about it” (p. 79).

Zahviazynskyi (1971) believes that “pedagogical methodology is the doctrine of the source (key) position, structure, functions and methods of scientific and pedagogical research” (p. 101). Furman (1994) considers more widely the concept of methodological approaches in education: “Methodology of psychological and pedagogical science is: a) a scientific discipline that studies the means, preconditions and principles of research activity in the field of education; b) system of methods, techniques and cognitive means of pedagogical anthropology; c) experience of acquiring the laws of psychological and pedagogical knowledge development” (p. 19).

That is, Furman (1994) does not consider separately only the essence of pedagogical methodology, but by the very title emphasizes that pedagogy and psychology are closely connected. He determines the methodology of psychological and pedagogical science as: initial provisions and ways of carrying out research work in education; initial provisions and ways of studying the human evolution development in the phylogenesis and ontogenesis, development (in the wide sense) of the child in the process of education and upbringing; a posteriori basics of psychological and pedagogical cognition.

In our point of view, the methodology of psychological and pedagogical sciences should determine: initial provisions and ways of scientific cognition; laws of psychological and pedagogical science development (genesis) and practices with taking into account the laws of a child development (ontogenesis); a priori and a posteriori approaches to carrying out psychological and pedagogical research works.

Thus, the psychological and pedagogical methodology is a doctrine of the initial provisions and scientific cognition ways of the development laws of psychological and pedagogical sciences, complex phenomena of pedagogical activity, patterns of a child development, a priori and a posteriori approaches in conducting research works and solving specific educational problems. In our point of view, philosophical methodology, psychological, pedagogical, and specific methodology (methodology of the theme under investigation) should be considered in relationship.

Among the methodological functions the most important one is the establishment of general scientific

approaches to cognition of the pedagogical activity phenomena essence in their developmental interaction.

It is known that the main method and phenomena cognition theory in their development and self-development is the dialectics which suggests studying the phenomenon through disclosing its contradictions. However, contradictions should not only be established. It is even more difficult to influence the interaction of their opposing components. That is, from points of view of both the researcher and the practicing teacher it is important to know the methodology (initial provisions and ways) of the establishment and resolution of contradictions. Moreover, one should proceed from the fact that the phenomenon functions until the interaction of its opposite components exists. The opposite components of the phenomenon contradictions emanate the internal energy while interacting that makes possible its self-development.

That is, without internal energy, and hence without the interaction of the opposite components, there are no internal driving forces for self-development of one or another phenomenon. The reason for the interaction of the opposite components is their internal struggle, which is ensured by the alternate domination of one of the constituents over another one.

However, the phenomenon besides internal forces is obviously affected by the external ones. Actually, there arises the problem of how to influence externally to balance the action of the external and internal energy forces, and not, on the contrary, to reinforce only one of the components, which can lead to the destruction of integrity. Since steady dominance of one force over another destroys the system. It is about how to model the vital, including educational, conditions to enhance the self-development of this phenomenon, and not to destroy it.

Marx's and Lenin's approaches to the resolution of contradictions were directed to consideration of the opposite components interaction through the recognition of the primacy of one of them (matter is primary, consciousness is secondary). Such methodological approaches proved to be unable to solve complex problems of the development of nature and society, so this ideology went bankrupt. Lutai (1996) proposes to resolve contradictions in education through such initial provisions (methodological principles): the principle of the identity of opposites in the infinite; the principle of ascent from abstract to concrete; the principle of dialogue interaction; the principle of the method rotation (p. 38–149).

Furman (1994) formulates and fills with the content ten methodological principles of Development School, “which organizers of the experiment must necessarily follow”, and their main purpose is to “be a guideline in search of different theories, ideas, patterns,

principles, models, concepts and facts in a complex world" (p. 19).

According to Furman such methodological principles are: super-task of science is special spiritual production, of practice being spiritual transformation; the unity of fundamental science and unique practice; structural and functional components of the system that are subject to innovation change; modular development training, which is developed as a meta-theory; there is a dialectical unity of developmental training, upbringing and education; an effective system of modular development training, which involves the development of its theory, methodology, technology and practice (experience); innovative psychological and pedagogical knowledge, which is characterized by polyfundamentalism and interdisciplinarity; development and self-development of the individual, which pass through hypostases, which are naturally interconnected and affect each other, but each does not lose its own nature; multivariate tendencies of psychosocial development and self-development of personality (Furman, 1994, p. 19–24).

Thus, Lutai (1996) forms a system of methodological principles that allow a dialectical study of any pedagogical phenomenon (one of the functions of psychological and pedagogical methodology). Furman (1994) formulates and reveals the content of the methodological principles underlying a fundamental study of the problems of module development educational system (specific methodology).

In our opinion, among the functions of psychological and pedagogical methodology the most important is the formation of initial principles system for solving existing contradictions, since the main method of scientific cognition is the dialectical one.

Let us investigate the main contradiction in education and derivatives from it (subcontradictions). The history of the world philosophical and pedagogical development thought testifies the efforts of scientists to construct appropriate philosophy of education based on the priority of social needs, interests and values.

Lutai (1996) notices that "the priority of any common values means their greater role in relation to personal ones and vice versa. Therefore, the declarative proclamation of the need for harmonious combination of common and personal values without the analysis of their contradictory relationship is a simplified understanding of the problem and is less effective to its successful solution" (p. 31).

Since each side of any contradiction tends to self-reinforce its role in resolving this contradiction, without formal prioritization of social needs, they will dominate the individual ones because they have more internal

power. Therefore, if from two components of the contradiction one is given a priority, obviously not a stronger one. However, this approach is not justified as the official priority to one of the components of contradiction leads to, as history shows, abnormalities in education and society.

There are different approaches to determining the main contradiction in education. Thus, Lichachev (1996) points out that "all pedagogical contradictions can be divided into two groups: social and pedagogical contradictions between the pedagogical and the leading social (economic, political, spiritual, moral, domestic and cultural) processes as well as the actually pedagogical, internal contradictions that reflect the dialectics of the pedagogical process itself" (p. 93). In his opinion, economic, political, cultural, social processes are leading in relation to pedagogical ideas.

Lichachev (1996) divides the internal contradictions into objective and subjective. The main intrinsic objective contradiction of the pedagogical process and the personality development in childhood is the discrepancy between the active nature of the child and the living (social and pedagogical) conditions that attempt to modify it (p. 93).

Shchukina (1976) notes that the main contradiction in studying is the contradiction between the requirements for studying, which are constantly complicating, and the capabilities of students (level of their knowledge, development, motives, methods, which they own) (p. 254). She relates the following contradictions to derivative contradictions between: the previous level of students' knowledge and new knowledge; the knowledge and ability to use them; the necessary and the achieved level of students' attitude to studying; more complex cognitive tasks and the available preliminary, insufficient for their solution, methods (p. 255).

Zahviazynskyi (1971) believes that the main contradiction of the educational process is the discrepancy between the achieved level of knowledge, skills, abilities, development, attitude towards education and the level of the near future perspectives (p. 75).

Lutai (1996) defines the main contradiction in the pedagogical process as a correlation between such two parties: "1) requirements for satisfying the public needs (interests, values) that are put forward by this official system of education (social "it is necessary"), 2) individual needs (interests, values) of certain students or some of their groups (the student's "I want")" (p. 31).

Taking into account the subject of our research and the fact that the ignorance of the child's natural forces does not only allow resolving the above-mentioned contradiction between the social needs ("it is

necessary”) and the needs of the child (“I want”), but also significantly narrows the educational methodology, let us determine the main contradiction in education.

In our opinion, when determining the main contradiction in education, which is the main driving force of its development, it is necessary to proceed from the objective existence of not only society and separate individuals, but also the nature that binds them. Then, we will define the main contradiction in education as the contradiction between the needs of society (“it is necessary”) and the needs of individuals (“I want”), taking into consideration their physical and psychological capabilities (“I can”).

It is obvious that such a triad way of determining the main contradiction in education (“it is necessary”, “I want”, “I can”) will allow us: a) to get rid of the differentiation of contradictions on the external and internal (according to Lihachev, 1996); b) to objectively construct a hierarchical a system of derivative contradictions; c) to solve more efficiently them and adequately reform educational processes.

It should be noted that each of these three components of the main contradiction has its own internal strength and resistance, which must be taken into account when trying to find ways out of the crisis. The mechanical giving preference to one of the contradiction parts does not only solve educational problems, but also leads the education, and hence, the development of the state to such crisis states, the exit from which will require a fundamental breakthrough of social and political foundations.

As it is well known, the Soviet educational system was built on the priority of social needs over individual and personal ones, material over spiritual, teacher over student, learning over development. Hence, as a result, the educational system with similar types of educational institutions, uniform curricula and programs, the same terms of learning and obligatory finishing of secondary school by all students was formed. This can be achieved only by authoritarian means, imperative studying. The results are obvious: formalism, hypocrisy, falsehood, double morality.

In the late 80’s of the twentieth century seemingly rigorous Soviet educational system cracked. The last All-Union Congress of Teachers (1988), under the powerful influence of educators innovators, established the second direction in the philosophy of education (relativistic and pluralistic), which proceeded from the priority of unique interests, values and needs of the individual over the general (“pedagogy of cooperation”). Although this trend having its ancient roots (Russo, Skovoroda), but the fact that the radical change of the philosophy of education preceded the collapse of the

great empire and obviously accelerated it, puts great emphasis on significance of education in the formation and development of the state.

Pedagogy of cooperation did not have practical application. The pedagogy of cooperation theorists idealize the nature of the child, its development as a self-aim in learning, the possibility of democratizing a person without presenting and fulfilling the necessary requirements too much. Years passed, and radical pedagogical “waves” had eroded the old educational structure, but did not create a new one. Crisis phenomena in education have already intensified in the independent state.

Thus, the absolutism and recognition of one of the sides’ priority of the main contradiction in the pedagogical process does not allow solving the most important problems in education.

Then it may seem that the way out is in some compromise, the synthesis of the opposite sides of the contradiction. As Lutai (1996) notes: “Recently, the third trend in the philosophy of education is becoming increasingly widespread. Its main idea is to overcome the priority role of the initial principles of the two previous directions and to carry out such a synthesis of their positive ideas, which would allow better solving the basic problems of modern education, and thus other major problems of humanity” (p. 75).

The main directions of the modern philosophy of education being the philosophy of harmonious integrity and relativistic and pluralistic one were formed depending on the recognition of the priority of general, social needs over individual and personal or vice versa.

However, in our opinion, when solving the main contradiction in education, not only the synthesis of its opposite sides will lead to huge achievements in education depending on the attained results and social and political conditions, taking into account the internal strength of the contradiction parts, but their integration with the provision of a leading function to one of them in the spiral method. For example, in the period of the struggle for independence of Ukraine, the first steps of its formation in the conditions of the dominance of Marx and Lenin’s ideology leading role of deideology and depolitics of education was justifiable. However, now such a statement of the question would be anti-state, since the ideology of state formation has become leading one in the education of the future of the Ukrainian nation.

Alternatively, after the domination of authoritarian pedagogy giving the leading role to the individual and personal needs, interests, values, which entail a change in target settings (development as a self-aim), overdemocratization of school life, humanization and humanization of the educational process is a positive

phenomenon, but until we consider these processes a panacea for the way out of the educational crisis in a whole. After all, all practicing teachers are well aware that without the elements of coercion the democratization will not happen in education. Another question is what kind this coercion will be; purely physical, which is a negative component in teaching, or exclusively pedagogical (the whole structure of the educational system, its technology encourage students to feasible, but intensive and systematic learning).

At the state level, one can cite the example of privatization as one of the constituent contradictions between state and private ownership. The transition from a monopoly of state ownership (not only a priority) in former socialist countries to the other extreme being a monopoly of private property, and in conditions of the absence of a good mechanism for changing ownership forms, cannot give the desirable results, which is observed in our country. Moreover, there is no philosophy of state building, the methodology for resolving the main contradictions of society, and the formal replacement of one component of the contradiction with the opposite one only complicates the general crisis. As Soros (1991) notes, absolutism of private interest is a big mistake, where these interests should be regulated by state means and principles (p. 83).

As it has already been noted, Lutai (1996) offers a methodology for solving contradictions based on the following principles: the principle of the identity of opposites in the infinite (by Kuzanskyi), the principle of ascent from abstract to concrete (by Hegel), the principle of dialogue of cultures (by Bibler), the principle of rotation of the method (Lutai, 1996, p. 114–119).

In our opinion, the principle of the identity of opposites in the infinite gives the possibility, on the one hand, to construct the philosophy of the educational system on the principles of complex interconnection and interpenetration (integration) of polar contradiction constituents depending on the social and political situation, on the other hand, taking into account the possible identity of opposites (for example, a polygon inscribed in a circle, and a circle, if the number of its sides is infinitely doubled) in the infinite, to see the remote perspective of the dialectical and logical development of opposite components of contradiction unity as a perfectly harmonious system. Based on this principle, the integration of the opposite sides of the contradiction is fully implemented. “Thus, when the principle of the identity of opposites in the infinite reveals some general dialectical and logical pattern of our cognition movement concrete to abstract, the method of ascending from abstract to concrete reveals not only the general pattern of our cognition movement, but also

sets the goal to bring knowledge about an object to clarify in the theory all of its specific properties” (Lutai, 1996, p. 40–42).

The principle of ascent from abstract to concrete (by Hegel), which complements the principle of identity of opposites in the infinite, allows a definite general contradiction to be specified by a system of sub-contradictions, to detail the content of each of them and to project constituents of contradiction on the specific components of the educational process.

The dialogue aims at achieving a consensus, a positional agreement in resolving any contradiction, based on the target setting that each component of the contradiction contains positive elements. It is not the search for the causes for the contradictions aggravation, but the joint search for truth, the attempt to bring the opposite positions closer is the basis of the dialogue of cultures principle. Dialogue interaction is not only a necessary condition for resolving contradictions, but also a prerequisite for the democratization and humanization of educational processes.

The principle of dialogue interaction allows to transform the student from the object into the subject of learning, to create the atmosphere of partnership and cooperation in the classroom, induces teachers to improve systematically their professional level.

Consequently, the principle of dialogue interaction involves not only positive perception and humane attitude to the opposite opinion, view, position, but also the search for a common basis of the opposing sides, the unification of efforts to resolve contradictions.

According to Lutai (1996) studying patterns of development, one should adhere to another principle – the rotation of the method. “The essence of the rotation of the method principle is the following. When we discover in a logical or at least intuitive form some regularity of our cognition movement from concrete to abstract (or vice versa from abstract to concrete), which gives us certain true result, then the rotation of this pattern, that is, the rotation of the method, also, of course, will lead us to a true result. For example, the arithmetic method of addition rotation will lead to the method of subtraction, the method of differentiation turning to the integration, etc.” (Lutai, 1996, p. 119).

Thus, the rotation of the method principle allows, during the analysis of contradictions, to move from one component to another and to search more effectively for the forms of interaction between them.

However, in our opinion, the rotation of the method principle laid down in principle of dialogue interaction duplicates it to some extent. After all, the principle of dialogue interaction consists of two parts: the actual interaction, which involves the analysis of the

contradiction constituents “from left to right” and “from right to left” and its dialog system. That is, the lack of one-sidedness and absolutism of one of the contradiction constituents, the achievement of not simple understanding between them, but a throbbing agreement.

The given system of methodological principles is united by the dialectical method, which in fact directs to such a method of studying the crisis phenomena. That method highlights the identification of their contradictions, the determination of disproportions between the contradiction constituents and, on this basis, the establishment of an algorithm to exit from the crisis, overcoming the negative trends in society, caused by disharmony of contradictions.

Proper time identification of the main contradictions and their correct solution is the main driving force in improving all social processes, including educational ones.

However, in order to establish the developmental patterns, it is necessary to trace the dynamics of the multiplication of contradictions by identifying the opposite facets of both components of the main contradiction and, on this basis, determine the new subcontradictions. The ability to dismember some integrity into separate, qualitatively new, opposite parts characterize both the depth of thought activity and the inexhaustible possibilities of improving social institutions through the dialectical structuring of their content.

Hence, the principle of differentiation, that is the dismemberment of the components of the contradiction to the new opposite parts, together with the principles of the identity of opposites in the infinite, dialogue interaction and ascension from abstract to concrete will form the basis of the methodology that will fully allow dialectically exploring and directing the development of social components.

Basing on definite methodological principles, one can interpret the model and demonstrate its visual effect. In our opinion, a pyramidal spiral with hyperbolic creations, conditionally cut into two parts, which symbolize the opposite components of contradiction, can serve as such a model. Both components move along the spiral, trying to take turns in mastering a leading role and identify or intensify the relationship. The pyramidal spiral with hyperbolic generators is infinitely directed upwards (the identity of opposites in the infinite), the ascent from abstract images (pyramid) to specific (separate turns of the spiral), the possibility to differentiate the general contradiction (the pyramidal spiral) into separate derivatives of contradictions (spiral turns). Both parts of the pyramidal spiral form a single integer and interact in the appropriate way (dialog interaction).

The technology for resolving contradictions, coordinated deduction of contradiction constituents in the developmental path of their interaction remains open. Well known approaches are the following: the superiority (priority) of one component of the contradiction over another, the primacy of one and secondary of another, or the synthesis, the eclectic union of the opposite sides, or the total ignoring of objectively existing contradictions leads to a sharp escalation of contradictions accompanied by social upheavals or explosions.

Therefore, the principle of dialogue interaction aims at resolving contradictions through the special interpenetration (integration) of their components with the alternate preservation of the leading role of one of them. This will not eliminate the contradictions in general and will create a new type of contradiction constituents' interaction that will ensure the further development of a social institution in higher hypostases. The preserved contradiction will be differentiated into parts (subcontradictions) and will continue to remain a source of inexhaustible energy, a driving force for further progress (identity in the infinite).

Let us try, using the principle of ascending from abstract to concrete, to consider the effect of general methodological principles in education.

In order to do this, we will form a hierarchical system of derivative contradictions in the educational process on the basis of the main contradiction in education determined above. In our opinion, such contradictions will be the contradictions between: the content of curricula and programs and the real mental capabilities of each student; the requirements of teachers and psychological and physical abilities of students; the learning and the development processes; the prevailing group forms of learning and the individual character of learning; the psychological state of children in critical stages of ontogenesis (critical age) and adequate dynamic changes in teaching technologies; the educational and the developmental components of content units; the methods of information retrieval and the explanatory and illustrative types of training; the assimilated theoretical knowledge and the practical skills; the ratio of subjects of natural and mathematical and humanitarian cycles; the active nature of children and the relatively static learning conditions; the differentiation and the integration of educational disciplines content; the achieved level of knowledge and new knowledge; the degree of general educational skills development and the requirements for mastering of all new knowledge; the division of efforts for the actual mastering of knowledge (concepts, laws, facts, etc.) and the use of educational material for the formation of general educational skills; the knowledge

that performs general educational, developmental functions and the knowledge projected for the future profession; the differentiated nature of educational disciplines and the integrated nature of thinking activity, world outlook; the professional intentions of students and their intellectual abilities; the shaped abstract and symbolic forms of thinking and the specific and practical requirements of life.

Among the above mentioned contradictions some of them are tactical, that is, those that are solved by each teacher and strategic ones that are solved at the state level. As it is known, the development of science leads to the expansion of the range and depth of knowledge; therefore, logically there arises a need to renew the content of education, breaking new knowledge into the basic content. The evolution of the cognitive sphere significantly influences and in some way changes the children's intellectual background. However, cognitive changes are significantly ahead of the mental abilities of children growth. Therefore, solving contradictions does not only modify the content, but also clarifies the educational goals, improves the educational technology and the structure of the educational system.

However, the reforming of education over the past 25 years has not adequately addressed the accumulated problems, while some of the sub-contradictions mentioned are intensifying.

With the achievement of independence in Ukraine, a number of radical changes in education have been made: true history has been returned to educational institutions, the structure of educational institutions has been democratized, and the basis for changes in the structure of the educational system has been created. The changes did not hesitate: gymnasiums, lyceums, collegiums, colleges have returned from their past. However, the general education school has maintained its structure virtually unchanged, unless one takes into account the replacement of signboards of some secondary schools (and, as a rule, in cities) for a gymnasium or a lyceum.

Thus, the reform of the educational system in Ukraine has been partially carried out, but still the supporting elements of the previous system have remained reproducing the following negative results:

- rural schoolchildren are not put in the same conditions in comparison with their urban peers (new types of schools are opened mainly in cities);
- the educational system has not been reformed, education has not acquired a systematic look in which every student would learn and develop according to his natural pace at the appropriate level of difficulty and complexity;
- the external independent assessment has boosted the entry into higher educational institutions, but

the low passing score (140 for profile and 124 for non-profile subjects) allows entering higher education institutions by more than 80 % of graduates. So, the intellectual background of the higher educational establishments significantly decreased (bribery from the entrance corridors moved to sessional ones);

- the external independent assessment at the same time gave rise to another negative phenomenon – tutoring that substantially undermines the foundations of full-time secondary education, since school graduates focus their studies with tutors on several subjects;

- the vocational education is decreasing, as 30–40 % of its potential students enter higher educational institutions; in all spheres of the economy there are not enough skilled workers;

- the gap between the level of the secondary school graduates' preparation and the requirements of higher educational institutions is increasing (separate schools of new type do not save the situation). A low pass mark on academic subjects leads to the fact that a significant proportion of students are not able to take educational and professional programs in higher education and total expelling of students is impossible (teachers remain unemployed). Consequently, a large part of the students who did not acquire the necessary knowledge receives higher education diplomas; they will not be able to find a suitable job and need retraining. Hence, all the negative consequences derive from that;

- objectively, the training of high-level specialists is deteriorating (in addition to the above-mentioned reasons, the lack of guaranteed employment, future unemployment is added).

The above mentioned negative consequences of the reforms not fully carried out in the state and in education considerably complicate the social and economic state of the country having already reached the critical threshold, which in conditions of the hybrid war which Russia runs against Ukraine, can have irreversible results. However, the war will end one way or another and we will need to raise from the ruins the economy of Ukraine, particularly in Donbas. Moreover, in this process, education will be a priority. No, even for nothing, investments will not serve the economy unless cohorts of honest and well-trained specialists and workers of different levels and categories are prepared.

But, what methodological principles should be taken into consideration to reform education, on the basis of which principles and by what means the formulated definite main contradiction and the system of its derivatives in education should be solved? Many new ideas are incorporated into the concept of "New Ukrainian School", and in the project "Law of Ukraine "On Education". It implies structural consolidation of

schools with the use of communities, the introduction of external independent assessment at the basic level of schooling, the transition to a 12-year term of education, the combination at the senior level of the academic school and professional training, and so on. However, most of them are planned to be implemented in the long run. That time does not tolerate. Reforms should be carried out quickly and efficiently.

Since all the components of pedagogical contradictions are related to the subjects of study, during their solution it is impossible not to take into account the fact that each child is a unique personality, with its genotype, genetic field, individual domestic and natural environments that create a unique sphere for the development of mental and physical strength. Without taking into account the real individual capabilities of children, without reviving pedagogical research our pedagogical science will never get rid of the bunch of authoritarianism, childlessness and formalism.

Consequently, the principle of natural conformity involves not only placing the uniqueness of the child in the epicenter of all pedagogical studies but also the teacher and making both of them the basis for the integration of the opposite contradiction constituents. We have to bear in mind that social needs are the result of the interconnection and interpenetration of the individual needs and that the creators of society, education have their own personal interests and needs.

The main means of the previous principle implementing is the systemic differentiation of education, which serves as the main component in the organization of the educational process at all levels – from pre-school to high school. Nevertheless, differentiation has its own characteristics at all degrees; it touches the content and the procedural, the structural and the system components of education.

The principle of system differentiation reveals the way to deeper penetration into the essence of the contradiction due to its decomposition into derivatives, the creation of an adequate differentiated educational system, which would correspond to the natural development of subjects of learning and serve to meet their individual needs.

The integration of contradiction constituents principle is the interpenetration of its constituents, which allows for some approximation of them in a spiral (due to the alternate maneuvering of leading roles) in order to solve the accumulated problems. Because of the domination of the left or right components, their identification is drawn to infinity. This ensures the contradiction infinite existence in time, that is, the non-stop engine in education.

Conclusions

The established system of methodological principles makes it possible to trace the system of derivative contradictions from the main contradiction and to adequately solve them reforming the educational system in such a way that not by force methods, but by legal and pedagogical means to make the adequate correction and to encourage both teachers and students to act in the right direction for the society and hence for them.

Using the dialectical methodology, one must take into account living nature functions according to its laws as an ideal chaotic integrity. The basis of the ideal self-organizing system is the “chaos”, which is characterized by the diversity of its components. Diversity is an indispensable condition for chaos. Man is a rational being, who, on the one hand, is a particle, an element of chaos, and on the other hand, is endowed with a rational property by nature, which induces him to logical interference into the structure of chaos, attempting to sort it in a certain way, and sometimes to improve it, often not realizing that natural chaos is the summit of perfection. As a result, human actions in some places destabilize natural processes. Thus, the global terrestrial contradiction is the contradiction between “chaos” and “logos”, without which it is impossible to determine correctly the derivative contradictions, the reasons for their occurrence and to solve them objectively and accurately.

References

- [1] Furman, A. V. (1994). Metodolohichna model shkoly rozvytku [The methodological model of the school of development]. *Ridna shkola*, 6, 19–25.
- [2] Likhachev, B. T. (1996). *Pedahohika. Kurs lektsyi* [Pedagogy. Lectures]. Moscow, Russian Federation: Vlos.
- [3] Lutai, V. S. (1996). *Filosofiiia suchasnoi osvity* [Philosophy of modern education]. Kyiv, Ukraine: Tsentr “Mahistr-S” Tvorchoi spilky vchyteliv Ukrainy.
- [4] Shchedrovytskyi, H. (1993). *Pedahohika i lohika* [Pedagogy and logics]. Moscow, Russian Federation: Izdatelskii Dom “Kastal”.
- [5] Shubynskyi V. S. (1989). Prakticheskaia znachimost metodolohii pedahohiki [Practical value of pedagogical methodology]. *Sovetskaia pedahohika*, 10, 78–83.
- [6] Shukina, H. Y. (Ed.). (1976). *Pedahohika shkoly* [School pedagogy]. Moscow, Russian Federation: Prosveshchenie.
- [7] Soros, G. (1991). *Sovetskaia sistema k otkrytomu obshchestvu* [Soviet system to open society]. Moscow, Russian Federation: Politizdat.
- [8] Zahviazynskyi, V. Y. (1971). *Protivorechiia protsessu obucheniiia* [Contradictions of learning process]. Sverdlovsk, Russian Federation: Sredne-Uralskoe knizhnoe izdatelstvo.