#### Roman S. V.

# THE CONCEPT "ECOLOGICAL AND HUMANISTIC VALUES" IN THE CONTEXT OF THE SECONDARY SCHOOL CHEMISTRY EDUCATION

Modern civilization faces not only ecological, but also anthropological threats – the destruction of the human in human beings. The priority of the constructive and transformational influence of ecological and humanistic values on all spheres of our life defines the formation of these values in secondary school students as the core of comprehensive education, an area of the most immense and systematic educational influence. The use of the terms "ecological" and "humanistic" in the construction of the concept of "eco-humanistic values" is theoretically justified and appropriate from the standpoint of the interaction of environmental theories, humanistic theories, and the theory of values. Ecology, humanism, and axiology are the social and philosophical worldview methodologies that contribute to the formation of value attitudes from their own, inherent to their methodology "layers" of social and philosophical knowledge.

Furthermore, according to O. Dzyatkovs'ka, the relationship between environmental and humanistic values is predetermined by the existing dependence of the values of nature on the value of human life, nonviolence as a form of attitude to nature and the principle of interpersonal relations. This relationship is also manifested through the recognition of the priority of teaching in secondary schools of basic human values, civic consent, and social partnerships as a means of taking environmentally balanced decisions [1, 31]. Thus, according to M. Kyselyov, ecology has a clearly defined humanistic content: it seeks to generate in people an adequate perception of the world (globalization and synthesis of ideas about the world), promote productive rethinking of man's place in nature, develop the sense of

responsibility for the actions, care for the healthy living condition for future generations [2, p. 21]. According to M. Khil'ko, this environmental ethics becomes a measure of the human nature, people's dignity and reflects the development of the new forms of consciousness that synthesizes the global human vision of nature with truly humanistic values, whereas certain abstract theoretical concepts, such as the unity of the mankind, the common fate of all people, give practical significance to the co-evolutionary development of people and nature [3, p. 29 - 30].

Following the logic above, the aim of the article is the definition of "ecohumanistic values" through the identification of their components: "humanistic values" and "environmental values".

Comprehensive analysis of this problem allows stating that school chemistry course has the potential to ensure a well-rounded development of the personality on the basis of humanistic and universal values, scientific and systematic knowledge, its significance for the social development of the person. Chemistry teacher, when planning the work of shaping human values in students, should clearly understand the pedagogical content of the object of his/her professional efforts. So, a quite understandable need to determine the nature of "humanistic values" arises. The categories of "humanism", "humaneness" and "humanization" are the basic categories of "humanistic values". In our view, it is appropriate to determine the nature of the concept through the definition of its content.

The comparative analysis of the content of the definitions of "humanism" and "humaneness" has shown that humanism, the specific historical social and cultural conditions put aside, is the focus of social and individual consciousness to the person, his/her well-being, development of his/her potential, and the formation of the inner freedom and responsibility. Humanism as a set of ideological values includes all the highest (universal) values produced by the mankind during the long and controversial path of its development: humanity, freedom, justice, human dignity, hard work, equality and fraternity, collectivism, internationalism and so on. At the same time, humanity has always been and remains the fundamental characteristic of humanism in all its dimensions in the historical development, while the orientation to the future, to

the free implementation of their creative potential (G. Allport, A. Maslow), *belief in yourself* and the ability to achieve the "*me-ideal*" (C. Rogers) act as the central point in it [5, p. 34].

Thus, "humanism" as a philosophical category is a general concept, which is much broader in content. It embraces the concept of "humaneness", which reflects the moral aspect of humanism. In addition, the term "humanism" is inseparably linked with the ecological vision of the world. In view of this, we interpret humaneness as a set of personality traits that express: the attitude to man and nature – recognition of man and nature as the highest values, respect for human honor and dignity, recognition of self-value of nature; care for people and natural objects based on a number of moral traits: thoughtfulness, sensitivity, kindness, tact, sympathy, resistance to any manifestations of evil, cruelty, indifference, inhumane behavior in the social and natural environment; friendliness as an imperative of any activity in the society and in nature; ability to act independently in accordance with one's own potential and eco-humanistic worldview. In our view, these are the most significant features that characterize the concept of "humaneness."

The process of developing humaneness allows the use of the concept of "humanization of education", which reveals the social and pedagogical aspects of humanism. In social terms, the concept of "humanization" refers to the process of assimilating human values, developing and acquiring by any social system of certain features aimed at the person and the dramatic changes of socio/cultural environment – changes in the relations among people and changes in the nature of interaction between people, subject to the free choice of the position and style of behavior, which cannot be imposed from the outside, by any order, law, etc. These are two interrelated processes; without them, the humanization of the environment is impossible. The essence of the concept of "humanization" in pedagogical research maintains a number of basic, invariant features: it is the process of transitioning to humanistic values, refocusing of attention to man and his/her problems, recognizing the self-value of the person, and creating conditions for their free self-development [6, p. 70].

Application of the principle of humanization for shaping humanistic values in students in the process of teaching chemistry requires, in the first place, drawing attention to the correlation of the concepts of "humanitarization" and "humanization", which is important as these concepts cannot be viewed as identical. For example, in academic and journalistic literature, it is quite common to view "humanistic education" as the process of reorganizing the structure and content of training based on the principle of anthropocentrism; to include human disciplines to the curriculum; to methodologically reconstruct human and social disciplines on the basis of the social and cultural paradigm "man in the world, the world in the man".

At the same time, humanization is the process of inspiration, humanization of all living and working conditions, the entire content of education, all kinds and forms of relationships that emerge in educational institutions. The process of humanization is considerably larger, more complex, and mostly implicit. These are the processes prompting the moral and psychological shifts in people, internal reorientation of the system of humanistic values, awareness of self-dignity and the importance of another person, forming a sense of responsibility and belonging to the past, present, and future. Humanization in the educational system involves primarily the presence of such a spiritual space, such an axiosphere that stimulates the activity of the inner life of the individual, encourage creativity and self-development [7, p. 8].

Thus, let us define significant differences among the pedagogical definitions named above. "Humanitarization" is a "humanization" of the content of education, "humanization" of knowledge, i.e., filling in the content with a humane sense and universal human values, overcoming the alienation of the content from man. "Humanization" is "humanizing" relations in the study process with a clear focus on the upbringing of the Person in the person [8, p. 90; 9, pp. 36 - 40, 42].

The above detailed semantic analysis of the basic categories of "humanistic values" – the categories of "humanism", "humaneness", and "humanization" – allows the immediate analysis of the meaning of the concept. The essential *features* of "humanistic values" are the following:

- humanistic values have subject-to-object and subject-to-subject nature of relations, which are always active, as they are the result of human interaction (subject) with objects (items, phenomena, processes) or subjects (other person or people, as well as living objects of nature), the properties, features, or qualities of which are reflected in human mind (V. Vasylenko, L. Vygotskyi, M. Hartmann, A. Leont'yev, S. Rubinstein, B. Tuharinov, et al.);
- the basis of these values are their universal value and comprehensive nature. Their core is the cultural and historical experience of the mankind, interiorized through the individual personal consciousness (V. Vindelband, A. Zdravomyslov, T. Parsons, R. Perry, D. Rickert, I. Frolov et al.);
- humanistic values exist in different forms in the human mind: from perceptual images of the unconscious at the level of the physiological and psychological dominant (A. Ukhtomsky), psychological set (D. Uznadze) to the reflection of surrounding events in the form of value judgments (I. Bech);
- subjective basis of human values are the universal needs and interests which, in turn, can be formed through the assimilation of humanistic values by the individual (M. Kuznetsov, A. Tkachenko, I. Chudinova, et al.)
- correspondence of the selected criteria of humanistic values to the conditions of the self-realization and self-development of the personality, to the potential inherent in the human nature (L. Vygotskyi, A. Maslow, J. Piaget, et al.)
- harmony, agreement among individual, collective, national, and general human meanings of humanistic values are the basis of their existence (hence the existence of certain humanistic values in certain historical systems of values);
- general acceptance of humanistic values as is the basis for the survival and further development of the human race (A. Maslow, V. Frankl, E. Fromm, et al.) [10, pp. 71 73].

In view of the above features, humanistic values appear as a set of specific formations (universal axiological norms in the individual and social consciousness) that are the spiritual guides of the individual and society. Having been formed in a subject-to-subject and subject-to-object relations, they are characterized by general

significance, comprehensiveness, harmonious combination of human, national, and personal meanings [11, p. 14].

Before starting the axiological analysis of the individual components of humanistic values of schoolchildren that can be formed by means of chemistry lessons, we should note, first of all, that the relationship of humanistic values with the basic conditions of the preservation and development of society and the individual suggests that these values should be quite limited in number. In addition, the trend toward the development of individual systems of values on the basis of value relativism comes to the fore. At the same time, the teacher, by virtue of his/her position and status, should educate the younger generation to orient to imperishable norms, principles, and values that are timeless. In this regard, the definition of the *fundamental* (basic) humanistic values, which have a high degree of universality, i.e., are supported by the overwhelming majority of society, becomes especially important. Fundamental humanistic values to be included into the structure of the chemistry curriculum are defined on the basis of the following considerations:

- these values should be adequate to the content of teaching/learning to have a formative, transformational nature; conform to the principles of ethics, kindness, humanity, and morality; have a social and personal significance; ensure a steady positive attitude of the individual to the surrounding reality;
- prominent among these values should be man and those areas of life, in which he/she takes a stand as a personality and acquires universal and national values [12, pp. 27, 13].

So, we included the following humanistic values in this list:

- a person, his/her "self", mankind, society, human relations (humaneness, the value of communication, mutual understanding, mutual respect, cooperation, etc.);
- life, the meaning of life, health and its components (somatic, physical, mental health), healthy lifestyle, safety (chemical safety);
- the value of nature, the earth, the universe, thriving environment as a condition for life, preservation of nature and the environment;

- moral (ethical) values goodness, honor, dignity, fairness, responsibility, tolerance, morality, etc.;
- inner freedom, values of free choice (identity, self-development, self-fulfillment, independent and critical thinking, self-control, etc.);
- the value of creativity and activity (work) for the benefit of society as a whole, the conditions for a free and creative self-development;
- the value of science, scientific knowledge, learning, research, truth, scientific world view, scientific and technological progress;
  - cultural values (the value of culture, language, customs, traditions, etc.)

Considering life and work to be eternal humanistic values, the safety of which must be pursued by everybody, we have to acknowledge the need for the axiologization of chemical education and actualization in its content of an additional concept of "chemical safety", as in the modern world everyone deals primarily with synthetic products. Chemical safety is the protection of the person, society, and nature from the harmful effects of dangerous chemical substances [14, p. 79]. Human life (as well as the life of other people around and future generations) depends on how well one can handle these substances. All that we now refer to as environmental and technogenic problems is a consequence of inadequate functional knowledge and culture of using necessary to people synthetic, artificial, and natural substances and materials. Therefore, during chemistry classes, it is important to introduce students to the chemical safety as yet another important axiological category of existence in the system of modern humanistic values. Nowadays, chemical education and culture determine the safety of human life.

Continuing to clarify the meaning of "eco-humanistic values", we shall examine the second part of the term – "environmental values".

The main cause of the ecological crisis is the utilitarian values that guide modern people. Therefore, to overcome this crisis, it is necessary to change the value system of the society as a whole and every individual, in particular. Environmental values become inviolable laws applied whenever society has to make a choice. These values are the key concept for the entire context of ecological thinking and activities.

It is essential that environmental values become an integral part of human values. The problem of forming the corresponding value orientations about nature is resolved in the process of dealing with a more general problem – the problem of forming environmental worldview, as the values are an important part of any form of a worldview. It is according to the values that the ideal is formed. The ideal as a meaning-defining part of the worldview serves as the pattern according to which people attempt to organize their optimal relationships with nature. Therefore, today it is important to form environmental values, which should correspond to the ecological imperative determining the nature of the interaction between the society and nature from the standpoint of eco-centric worldview, namely: only that which does not affect the dynamic equilibrium of the biosphere is right and allowed.

We believe that chemical education must play the decisive role in shaping these values in school children. The fact is that chemical reactions underlie any process in the ecosystem, as well as in the body, which should be considered when evaluating human impact on the specific ecosystems and the biosphere as a whole. School chemistry classes should generate knowledge about the laws of nature and the ability to use them for the benefit of people and the environment, introduce the chemical form of life and reveal the relationship with other forms of life, explain the reasons for the loss of the natural balance and the deterioration of the quality parameters of the environment in connection with the practical human activity, and to indicate the limits of critical loads on the biosphere under which the process of destruction begins.

The importance of studying environmental values is explained by the lack of the adequate definition of the concept of "environmental values", which prompted us to formulate the *author's definition* of the term: *environmental values* are the notion of eco-centric environmental ethics that (a) reflects the importance for the individual of environmental ethics as a regulator of proper social behavior and (b) reflects his/her subjective active and engaged attitude towards the implementation in life and work of eco-ethical ideals, interests, motivations, norms, and principles of choosing

the environmentally safe and appropriate course of actions, directed at the protection of nature and human health.

Focus on the ideal determinants of social practices when dealing with environmental problems encourages chemical education to consider the entire potential of nature to express its values. Among these values, the famous Ukrainian philosopher-ecologist Vladimir Boreyko names, along with internal values (the inherent worth of nature), intangible values as well – historical, patriotic, religious, aesthetic, ethical, symbolic, spiritual, standard, research, museum, educational, environmental (environmental protection and maintenance), as well as the values of existence, heritage, freedom, inspiration, protection against new diseases, etc. [15, p. 28 – 31].

In addition, the formation of environmental values in the schoolchildren in the process of chemical education cannot be reviewed outside the social and cultural context, because the nature of the value interaction of the person with the natural and social environment always reflects the type of the culture that he/she carries. That is why one cannot hope for positive changes in the environment or individual axiosphere without changes in the chemical culture and environmental management. The correction of the ecological culture and the system of the environmental values in modern teenagers should be done by changing their attitude to the surrounding world and their place in it and adopting the norms of environmental ethics. Based on the concept of ecological culture, we believe that the values of environmental ethics can be represented as a value system ensuring moral relationship with the environment, demanding that personal needs are satisfied in a way consistent with the interests of nature, thus defining eco-ethical activity and behavior of the individual directed at the preservation of the environment for future generations.

A clear axiological determination of this process should be among the strategic priorities for the formation of environmental values in schoolchildren in the course of chemical education, because the meaning of the relationship between people and nature can be comprehended on the basis of values. Only deep, spiritual understanding of the essence of nature can lead to the formation of the environmental

values in the young generation. In our view, the frame of values that ensure environmentally sound value attitudes of students towards nature should include the following:

- nature, not man is the highest and absolute value as it is the creator and guardian of life, which created its most developed form a human being;
- nature has an inherent worth as the subject of interaction; holistic, active, and multifaceted agent of being, which is manifested in the life creation; this is life in all of its hypostases physical and spiritual;
- nature is a "cradle of life", man is the most perfect "child" in it, the greatest hope of nature;
- the sense of the expressiveness of nature (any object, phenomenon, creature) is the sense of the value of life, the uniqueness of each form of its manifestation; only realizing the value of life and their own spiritual and personal significance in this world, people are able to realize the value of other forms of life in nature and the value of life in general;
- the attitude towards nature is the attitude towards yourself because as people live in nature, so nature lives in them;
- every piece of nature, its normal existence in the holistic biosphere is a guarantee of the future of the human race;
- preservation of nature is the preservation of people's lives including life as a superior phenomenon of the universe as a whole;
- nature has an exceptional vital value not only due to the utilitarian values but also to a wide range of other values and the production of certain moral standards relevant to them: preservation of life, its development good; indifferent, unjustified destruction of life evil; the best tool of the moral self-control at the moment of the inevitable destruction of life the conscience; the best expression of morality in relation to nature altruism: selfless sympathy, commitment in the name of nature, renouncing the absolute right to another's life [2, p. 22, 16, pp. 116, 121 123, 17, pp. 174 177].

On the basis of the analysis of the system of environmental values of schoolchildren, which can be formed by means of chemical education, our research identified the following axiological components:

- environmental values proper: the universe, biosphere, nature, life (all its forms and varieties), people, health, eco-centric environmental awareness, environmental safety;
- personal qualities-values: virtue, sympathy, humaneness, prudence, care, rationality, self-restraint/commitment, positive individual environmental responsibility, creation;
- value priorities of environmental nature: moral and value attitudes to nature and people, positive group and social environmental responsibility, ecological education, integrity and quality of the living environment, healthy lifestyle, public health, demographic balance, environmental management, the need to curb consumption, ensure environmentally friendly production cycle, restore the balance between people and nature, and maintain natural living conditions of future generations.

Thus, the desire to maintain the world intact and foster universal environmental values should be the highest need of each young person, which transfers the problem to the realm of pedagogy and methods of teaching chemistry, the strategic objective of which is the search for the conditions, methods, techniques, and forms of the organization of the educational process that promote the development of environmental skills, instilling of the rules and regulations of environmental and moral imperatives, turning them into the system of internal imperatives for every person. These tasks are: developing students' interest in issues of social ecology and current environmental problems; development of those motives of social value that define the attitude to nature; revealing the multifaceted value of nature; formation eco-ethical knowledge and correspondent skills in students, as well as generalized principles and patterns of behavior in the environment; the inclusion of schoolchildren in the local environmental activities; encouraging students to evaluate the instances of individual and larger social interaction with nature, as well as

cultivate their involvement in the monitoring and evaluation of the results of their own nature protection efforts, etc.

The generalization of the concepts of "humanistic values" and "environmental values" in order to provide the final conceptual definition of "eco-humanistic values" enables us to formulate the *author's definition*. Ecological and humanistic values shall be viewed as a set of essential social and personal ideas, norms, principles, and ideals that, exemplifying humaneness, morality, and eco-centric environmental ethics, define socially adequate and eco-chemically safe efforts to preserve life and health, protect nature for the present and future generations and should lead to the formation of conscious subjective involved positive moral value attitude of the individual to the world, to other people, to himself/herself.

Thus, the analysis of the problem of the formation of ecological and humanistic values in schoolchildren in the process of chemical education in the context of socio-cultural development demonstrates that the assimilation of a new system of values governing the relationship with nature and society helps a teenager to master the art of living in harmony with nature, himself/herself and others. The global nature of the spiritual and the consequent environmental crisis brought the problem of the formation of ecological and humanistic values on the civilizational level, thus emphasizing its priority, as the question is about saving human civilization through collective efforts. The formation of ecological and humanistic values is a comprehensive process, which involves all aspects of the individual development through its value attitudes to nature, society, and himself/herself. The experience of the developed European countries, where the modernization of the system of education prioritized eco-cultural values, proves the necessity of this approach [18].

Further research in this area should deal with the theoretical justification of the pedagogical system of forming ecological and humanistic values in the process of teaching chemistry at school.

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### Роман С. В. Сутність поняття "еколого-гуманістичні цінності" в структурі шкільної хімічної освіти

Пріоритет конструктивно-перетворювального впливу екологогуманістичних цінностей на всі сфери життя визначає лейтмотивом загальноосвітньої підготовки як найбільш масової й систематичної ділянки освіти формування означених цінностей у школярів. Використання нами термінів "екологічний" і "гуманістичний" для визначення поняття "екологогуманістичні цінності" теоретично виправдано й доцільно з позиції взаємодії екологічних, гуманістичних теорій і теорії цінностей. У статті подано авторське визначення поняття "еколого-гуманістичні цінності" в структурі шкільної хімічної освіти через ідентифікацію його складників — "гуманістичні цінності" й "екологічні цінності".

*Ключові слова:* еколого-гуманістичні цінності, сутність поняття, шкільна хімічна освіта.

### Роман С. В. Сущность понятия "эколого-гуманистические ценности" в структуре школьного химического образования

Приоритет конструктивно-преобразовательного влияния экологогуманистических ценностей на все сферы жизни определяет лейтмотивом общеобразовательной подготовки как наиболее массового и систематического участка образования формирование указанных ценностей у школьников. Использование нами терминов "экологический" и "гуманистический" при обозначении понятия "эколого-гуманистические ценности" теоретически оправдано и целесообразно с позиции взаимодействия экологических, гуманистических теорий и теории ценностей. В статье представлено авторское понятия "эколого-гуманистические ценности" в структуре определение образования через идентификацию школьного химического его составляющих - "гуманистические ценности" и "экологические ценности".

*Ключевые слова:* эколого-гуманистические ценности, сущность понятия, школьное химическое образование.

## Roman S. V. The Concept "Ecological and Humanist Values" in the Context of the Secondary School Chemistry Education

The modern civilization is fraught with not only ecological danger, but also anthropological disaster – destruction of the human being. It creates a priority of constructive and converting influence of ecological and humanistic values on all areas of life and determines a keynote of general educational training, as an area of the most immense and systematic sphere of education, as well as formation of these values in secondary school students. The use of the terms "ecological" and "humanistic" in the creation of the concept "ecological and humanistic values" is theoretically justified and it is expedient from a position of interaction of ecological, humanistic theories and the theory of values. In the article the content of the concept "ecological and humanistic values" in the context of school chemical education is defined through the identification of its components - "humanistic values" and "ecological values". This allows author to formulate definition of this concept. The ecological and humanistic values are considered as a set of significant ideas, norms, principles and ideals of public and personal work which serve as the examples of humanity, morality, and ecocentric ecological ethics, define socially significant, as well as reveals the nature of ecochemically safe behavior of the person aimed to preservation of his/her life and health, protection of the current and future generations. The author outlines the necessity of formation of the exclusively conscious and resistant subjective activity that contains positive moral and valuable human's attitude to the world and other people.

*Key words:* ecological and humanistic values, concept, secondary school chemistry education.

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