
Factors and Conditions of Student Environmental Culture Forming in the System of Ecological Education

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Abstract

The relevance of the study has arisen because the environmental crisis that arose in the second half of the twentieth century is acquiring more and more global nature and the risk of irreversibility of its consequences increases. Overcoming this crisis, preventing or overcoming its negative consequences is possible only through the efforts of the entire human civilization, the development of which should receive a humanistic and environmentally friendly orientation. The formation of a new worldview and ecological culture of both each individual and the human community as a whole, which can be carried out most effectively in the process of environmental education, becomes relevant. The study purpose: this article aims at analyzing various approaches to the formation of ecological culture, factors and conditions of its formation effectiveness. The study results: It establishes that ecological culture is a humanistic culture of human interaction with the biosphere and the socio-sphere, aimed at preserving and restoring the environment and creating the noosphere. The features of modern environmental education are in its development based on the noosphere concept and the concept of sustainable development. The main factors of increasing the effectiveness of ecological culture formation at the cognitive, reflexive-value and activity-based levels of environmental education are identified. The main conditions for the effectiveness of environmental culture formation are the increasing of environmental education importance and the dynamic interaction of its subjects. Practical significance: The materials of the article are of theoretical and practical value for the development of educational and methodical complexes on ecology and ecological pedagogy, teacher training and retraining programs, as well as programs aimed at the formation of new environmentally friendly ideological and value attitudes and behavioral skills of students.

Keywords: ecological culture, ecological education, educational system, methodological approaches, conditions and factors, ecological conformity, efficiency, students

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INTRODUCTION

The consequences of an ecological crisis possible escalation that modern humanity has faced pose the greatest danger compared with the consequences of any economic or political crises. No state in the world can cope with them or prevent them on their own. In such a situation, theoretical and practical issues are acute how to rationally use the habitat mastered by mankind, to create effective mechanisms for the interaction of man and society with nature, man with society and societies

among themselves, taking into account the requirements for the protection and reproduction of nature and environmental consistency in all spheres of life (Khusainova et al. 2018, Lubnina et al. 2016) In the conditions of modern scientific and technological development, which is destroying the nature, in the conditions of consumer production activities and established market relations, this can be achieved through global reforming of the entire system of

environmental education and upbringing to increase the level of ecological culture of the planet's population

The urgency of the investigated problem in Russia is determined at the state level. In 2001 the State Duma of the Russian Federation adopts the federal law *On Environmental Protection*, which states that the main place in the formation of ecological culture as an element of national security, ensuring health and a high quality of life is taken by the system of continuous environmental education and the dissemination of knowledge in the field of ecology; emphasis is placed on the development of environmental awareness and the ability to reflect and evaluate both one's own ecological culture and ecological culture of other people (Federal Law №7-Φ3 2018).

Man is a subject that carries out the interaction of nature and culture, integrates culture into nature, changing it and satisfying his/her needs at the expense of its resources (Ambrozy et al. 2017, Faleeva et al. 2017, Shcherbakov et al. 2017, Tyurikov et al. 2018, Velieva et al. 2018, Vinogradova et al. 2018). It is the culture of a particular person that determines what will be the features of this interaction and its consequences. Modern culture, which is characterized by spiritual impoverishment, the predominance of consumer consciousness, selfishness, the alienation of man from nature and from other people, led humanity to the edge of a global environmental crisis. However, it is culture as the phenomenon that allows a person to preserve his humanistic essence, to harmonize the relationship between man and nature. Such a culture is called ecological (Doroshko 2012).

The crisis of interaction between society and nature has led to an awareness of the need for change in accordance with the environmental conformity of the social, legal, and state regulation of this interaction, both at the level of specific mechanisms and at the integrated system level. In modern crisis conditions, it is important to supplement the cultural conformity of education with environmental conformity, pedagogical support for the formation of ecological culture, which implies the formation of a person's orientation towards a healthy lifestyle, the development of an individual's ability to self-determination in the *man-society-nature* system, the result of which is to overcome the environmental crisis from the initial level of development of society - the level of a particular person (Isachenko 2013).

Ecological education is increasingly ceasing to be part of the classical educational process, acquires new

meanings and goals related to the formation of ecological culture and value attitude to the environment, acquiring high importance in the theory and practice of modern pedagogy. The process of ecological culture formation is recognized as a process of education based on environmentally conformed moral and ethical standards of attitude to the environment and rules of behavior in it, the process of formation of aesthetic feeling and love for nature (Mindolina 2017).

The formation of a society with high environmental responsibility based on modern concepts of sustainable development and noosphere nature is impossible without formation of the ecological culture of the individual at all stages of its formation. Education in general, and modern environmental education in particular, is the foundation of this process; its result is the creation and consolidation of cultural and moral values, social principles, and the motivational orientation of the individual (Cherdymova et al. 2018, Zinchik and Bezdudnaya 2017). Student age is the period of an adult personality's formation, therefore, the study of the peculiarities of ecological culture formation at this stage of the socialization process, as well as the creation of appropriate conditions for increasing its effectiveness are particularly relevant.

LITERATURE REVIEW

The Main Approaches to Understanding the Ecological Culture of the Individual

Defining ecological culture in a broad sense as a social and personal culture that characterizes the attitude of society as a whole, individual social groups and specific individuals to nature as one of the highest values, which determines a special environmentally appropriate way of organizing social life and the style of relationships with the environment, modern Russian scientists identify several areas in its understanding:

- as a system consisting of special knowledge and the forms of activity learned by man, aimed at unity with nature, combining environmental feelings, environmental activities and behavior;
- as the synthesis of a wide range of knowledge related to the solution of environmental problems in the industrial sphere, environmental awareness, in which such knowledge passes into environmental thinking, and then into the norms of everyday behavior;
- as a culture of feelings of sympathy, experience and life-affirmation, belief and moral values system at

the world outlook level (Bakaeva and Tolmacheva 2008, Doroshko 2012, Ismagilov 2008, Maslennikova 2017).

Grishaeva (2011) under the ecological culture of a person understands specific thinking, self-determination, self-attitude and self-correction arising from a generalized essential idea of regularity of response to an ecological situation threatening the reproduction of life and deforming the habitat, in accordance with the values of inclusion of anything into the existing reality representing the metasystem-based dynamics of being (Grishaeva 2011).

A number of scientists connect the concept of ecological culture of a person with a new quality of interaction between man and nature, requiring a higher level of ecological competence, including intellectual (ecological knowledge), value (ecological consciousness and behavior) and activity-based (practical skills and skills of environmental protection) components (Maslennikova 2017, Voedilova 2012).

Rybachek (2012) complements the concept of ecological culture of a person with acmeological components, such as: Socio-natural development of society, under which the environment is maintained and improved; the conscious orientation of a person to *eco-life*, love for nature and awareness of one's place in the process of co-creation with nature; environmental responsibility for the preservation of life on the planet; ideology, reflecting human solidarity with nature and taking into account the response of the environment to anthropogenic changes; holistic knowledge of nature and the laws of one's interaction with it; norms and ideals that limit selfishness; the conscious attitude of people to nature; human activity, minimizing the risks of environmental disasters; optimization and harmonization of environmental management processes; spiritual and moral environmentally appropriate values; complex processes of environmental education and self-education, taking into account the understanding of the fundamental importance of maintaining balance and preservation of the biosphere (Rybachek 2012).

Glazachev and Gagarin (2015) distinguish the following essential features that characterize the ecological culture of the individual: the included interaction in the socio-sphere, biosphere and noosphere; internal determinant of harmonization of such interaction; lack of egocentrism, responsibility for oneself, others; system self-organization in the realization of goals, proceeding from the subordination of a part to the whole; the priority of the principle of life

reproduction on the planet in worldview and world relations self-organization of an individual corresponding to this principle; self-realization of the person's inner essence in accordance with this principle and the content of the worldview.

Features of Modern Environmental Education

The beginning of the XXI century was marked by the spread of the new noosphere concept of education, which is based on such conceptual notions as the integrity of the world, the unity of humanity and the entire universe, that is, global universal evolutionism. In this concept, life is viewed as an integral process of the biosphere evolution into the noosphere due to its interaction with the socio-sphere. Within this concept, environmental education is fundamental, and is understood as a complex self-developing open system of integration of scientific knowledge all areas about inanimate and living nature and society, which connect together the ideas of humanism and the preservation of a socio-natural environment suitable for humanity (Aliev and Nabieva 2011).

At present, the concept of sustainable development is being introduced into environmental education as its basis, which aims is to find solutions to the global problems of modern civilization, to its development and improvement of the quality of people's life, preservation of natural resources to ensure human life in the present and future. Sustainable development is a managed system balanced socio-natural development that does not destroy the environment and ensures environmental, national and global security and an indefinitely long lifespan of civilization (Nemtsev 2014).

Innovative forms of modern environmental education, based on the noosphere concept and the concept of sustainable development of the biosphere and socio-sphere, must meet the requirements of multidisciplinary nature, lifelong continuity, system nature, critical and creative thinking, ethics and morality of life activity, responsibility, initiative in developing a culture of communication and making solutions, interactivity of teaching methods, reorientation of attention from knowledge transfer to awareness of problems and search for possible solutions (Melnik 2013).

The development of modern environmental education is characterized by a reorientation from the study of environmental problems of the natural environment to the problems of human ecology and the socio-sphere; from solving tasks related to

environmental protection and rational nature management to the tasks of co-evolution of the biosphere and socio-sphere; from the development of strategies to protect against the harmful effects of anthropogenic changes of nature to their prediction and prevention; from the subject-based natural science design to the social problem-based and humanitarian natural science (Grineva and Davletshina 2013).

Environmental education, which is still oriented towards a reflection of civilization, should be reoriented towards a reflection of culture. This is consistent with modern integrative multidisciplinary methodology. A holistic picture of the world can only be built based on the synthesis of culture and science. Humanistic ideas and an ecological style of thinking are increasingly penetrating all sciences, and an understanding of the need to protect all forms of life and preserve the conditions for their development increasingly penetrates the understanding of humanism. The ecological field of knowledge is increasingly focused on the study of not only the natural world, but also the place and role of man, that is, the socio-natural universe. In addition, the principles of complementarity and multiplicity of the world pictures should become the didactic principles of environmental education. Environmental education should be based on students' attitudes, already formed or being formed, that do not exist outside the cultural space. Ecological education is closely connected with the study of worldview problems, that is, the ecological worldview is becoming in the line with the mythological, theological and metaphysical worldviews, which is associated with the need to master the knowledge in philosophy, culture, history and other humanities. It is also associated with the study of the specific form of cultural activity of man and humanity, which is aimed, on the one hand, at mastering the natural components of culture, and on the other, at mastering the cultural potential of nature (Magomedova 2016).

Formation of the Individual's Ecological Culture as a Problem of Modern Pedagogy

The researchers note that at the present stage, students at various stages of education have a theoretical level of knowledge in the field of environmental protection, which is much higher than the level of both practical skills in this field and environmental culture. In modern pedagogy, there are reasons for the low efficiency of ecological culture formation in the educational process. These include: the priority of emerging new urgent tasks of education and the study of the most demanded subjects for the Unified State

Examination; orientation of environmental education programs on theoretical knowledge; compulsory, not voluntary nature of students' environmental activities; consumer attitude towards the environment and negative attitude towards the surrounding reality formed by the mass media; virtualization of the world and activities in it (Mindolina 2017).

A number of other external and internal factors also have a negative impact on the formation of an individual's environmental culture in the process of environmental education. The external factors include the predominance of traditional progressive and anthropocentric teaching methods and the content of the disciplines studied (Galushkin 2015), which helps to consolidate in the students' minds that the progress of humanity, focused on creating an artificial environment, is infinite, as the endless natural resources are on which it is based. Ecologically significant is the awareness of the need for a reasonable limitation of human progress due to the limited capabilities and resources of the biosphere. Internal factors are the level of understanding by students of their personal responsibility for the preservation of the environment, as well as its ability to transmit ecological culture to other people, social groups and younger generations (Kupriyanova 2015).

One can consider a few basic modern methodological approaches to the formation of the individual's ecological culture. With a holistic methodological approach, a person is considered as the main, fully integrated subject and object of life activity, and everything that surrounds him, both in the social and physical environment, is considered as a single environment. Such an approach is based on such an organization of training and educational space, which includes manifestations of ecological culture at the physical, medico-biological, hygienic, psychological, educational, axiological, emotional and social levels. The advantage is given to the informal educational environment, which has a high potential for the use of implicit methods of education and training, which contribute to the most effective formation of environmentally sound behavior and environmental habits. Implicit memory has the greatest stability and capacity for these actions and skills, which is very important in the process of socialization, socio-cultural development and self-development of students (Yurochkina 2017).

A system approach to the formation of ecological culture implies a complex of pedagogical processes and

educational technologies aimed at its formation, which are based on human biological needs, socio-economic and cultural prerequisites for the development of society. They ensure the harmonious formation of the main elements of ecological culture: cognitive (transfer and assimilation of basic bioecological concepts, knowledge of important principles and laws of ecology, the interaction of man and nature, human places and roles in the natural environment), reflexive value (the formation of an environmentally appropriate value orientation, active readiness for ethical evaluation of environmental appropriateness of behavior, ensuring the ability to understand the harmony of nature, the desire to preserve and create beauty in the natural and artificial environment), activity –based (readiness to counteract acts that harm nature, to actively participate in voluntary environmental actions and labor activities), patriotic-legal (fostering a sense of the nature pride of one's country and homeland as a national treasure, the readiness of its practical implementation in environmental protection activities based on environmental law), physical (formation of skills to use natural factors for health promotion in any environmental conditions) (Popov and Sazonova 2017).

The specificity of the eco-sociocultural methodological approach to the formation and development of a student personality's ecological culture developing in recent years is in understanding the student's characteristics as an object of pedagogical influence related to the perception of his/her personality as a goal, subject, result and main criterion of the effectiveness of ecological culture formation process. With this approach, ecological culture is understood as a single systemic whole, the formation of which is a multilevel process, carried out through the development of ecological knowledge, starting with abstract formal and ending with concrete and informative. Its formation and development is carried out at the personal, activity-based, cultural and systemic levels, as well as at the level of development of the forces intrinsic to man, manifested in interaction with nature and civilization. The eco-sociocultural approach implies the formation of a personality as a subject of cognition, activity and communication, assimilating, transforming in accordance with the principles of ecological and cultural conformity and transferring social norms and values. This approach is based on the need to study and create an environment of growth and personality formation, ensures the integration of the student into other socio-cultural environments, uses the educational potential of these cultures, creates a

culture-like educational environment, forming the individuality and subjectivity of the student in the process of cognition of ecological, social and cultural reality (Fortunatov 2018).

The following educational and socio-cultural conditions are highlighted that significantly and positively influence the formation of an individual's environmental culture in the process of education: high significance for the student of the educational environment; student's intensive involvement in the life activity of an educational organization and the significance for him/her of all the processes occurring in it; diversity and interactivity of educational activities, the expansion of conscious self-realization experience, the intensive development and formation of a system of internal regulators of behavior, which allows the student to feel like an active subject of life activity; the expansion of the training and educational potential of the educational organization, which affects the intensity and naturalness of ecological culture formation; an increase in the number of studied disciplines that consider the deep relationships in the *man-nature-society* system, which harmonizes the process of forming an ecological culture; active subject-subject relations of participants in the educational process, creating equal, respectful, trusting relationships based on mutual understanding, mutual help and mutual support, which provide mutual activity (Kulmaganbetova et al. 2018).

RESULTS AND DISCUSSION

In the course of the study, based on the analysis of various approaches to the understanding of ecological culture, a definition of ecological culture was formulated. Ecological culture is a humanistic culture of human interaction with the biosphere and the socio-sphere, uniting ecologically oriented values and attitudes, norms and rules of behavior and activities, knowledge and skills, thinking and feelings into a single system which are aimed at preserving and restoring the environment and creating the noosphere. Continuous environmental education plays the main role in its formation.

Features of modern environmental education, based on the noosphere concept and the concept of sustainable development, consist in its reorientation from the study of environmental problems of the environment to the problems of the ecology of man and the socio-sphere; from solving tasks related to environmental protection and rational nature management to the tasks of co-evolution of the biosphere and socio-sphere; from the development of

strategies to protect nature from harmful effects of anthropogenic changes to their prediction and prevention; from the subject-based natural science design to the social problem-based and humanitarian natural science.

For successful and effective formation of students' environmental culture in the process of environmental education, it is important to strengthen the influence of the following factors:

- at the cognitive level: prioritization of environmental and humanistic educational programs, the introduction of programs developed on the basis of the noosphere concept and the concept of sustainable development; development and consolidation of knowledge about the principles and laws of the relationship between man and nature; developing the ability to detect, analyze and find ways to prevent or solve environmental problems;

- at the reflexive-value level: overcoming the consumer's attitude to the environment and the negative attitude to the surrounding reality and the formation of a humanistic world view, perception of the individual as an active subject of interaction in the *man-society-nature* system; development of ecologically consistent social norms and values, development of the ability to transmit them to younger generations and people around them;

- at the activity-based level: the practical orientation of environmental education programs and the voluntary nature of activity on environmental conservation and environmental problems' solution; the formation of a cultural and environmentally conformed educational environment; expanding the diversity and interactivity of educational activities; the formation of behavioral and activities skills aimed at the preservation, restoration and development of the ecosphere and socio-sphere.

When forming the ecological culture of a personality, it is important to take into account the peculiarities of all the structural components of the educational process, the specifics of their interrelation and interaction. For the successful formation of ecological culture in the process of environmental education, it is necessary to realize the following conditions: increase its importance for students, take into account the influence on him/her of the personality of both the teacher and the concrete student in order for to realize that they are active subjects of interaction with the socio-natural environment, which is in interaction

with them. This dynamic interaction contributes to the adoption by students of the patterns and rules of environmentally conformed changes in the environment, which is the basis of the ecological culture of the individual.

CONCLUSION

The study relevance is due to the fact that the environmental crisis that arose in the second half of the twentieth century is becoming more and more global and the risk of its consequences becoming irreversible increases. In the conditions of modern scientific and technological development, which is destroying the nature, in conditions of consumer production activities and established market relations (Folomkin and Voronina 2017, Sudarikov and Merkulova 2017), this crisis can be overcome and its negative consequences can be prevented only through global reforming of the whole system of ecological education and upbringing to increase the ecological culture of the planet. The formation of a new worldview and ecological culture of both each individual and the human community as a whole, which can be carried out most effectively in the process of environmental education, becomes relevant. Student age is the period of an adult's personality formation, therefore, the study of the peculiarities in the formation of ecological culture at this stage of the socialization process, as well as the creation of appropriate conditions for increasing its effectiveness are particularly relevant.

The study finds that ecological culture is a humanistic culture of human interaction with the biosphere and the socio-sphere which unites ecologically oriented values and attitudes, norms and rules of behavior and activity, knowledge and skills, thinking and feelings into a single system, and is aimed at preserving and restoring environment and the creation of the noosphere.

The features of modern environmental education are in its development based on the noosphere concept and the concept of sustainable development. Innovative forms of modern environmental education should meet the requirements of multidisciplinary nature, lifelong continuity, systematic nature, critical and creative thinking, ethical and moral nature of living activity, responsibility, initiative in developing a culture of communication and decision-making, interactivity of teaching methods, reorienting attention from transferring knowledge to awareness of problems and finding possible solutions.

The factors to increase the effectiveness of ecological culture formation at the cognitive, reflexive-value and activity-based levels of environmental education are identified. The main ones are the implementation of priority educational programs developed on the basis of the noosphere concept and the concept of sustainable development; overcoming consumer attitudes towards the environment and negative attitudes towards the surrounding reality and the formation of a humanistic worldview; the formation of skills of voluntary behavior and activities aimed at the preservation, restoration and development of the ecosphere and socio-sphere. The main conditions for the effectiveness of environmental culture formation are the increasing importance of

environmental education and the dynamic interaction of its subjects, taking into account the characteristics of all the structural components of the educational process, the specifics of their relationship and interaction.

The materials of the article are of theoretical and practical importance for the development of educational and methodical complexes on ecology and ecological pedagogy, teacher training and retraining programs, as well as student programs aimed at creating new environmentally conformed ideological and value attitudes and behavioral skills.

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