

**M. R. Arpentieva^{1*}, G. K. Kassymova², S. V. Lavrinenko³, Z. I. Tyumaseva⁴,
G. V. Valeeva⁴, O. B. Kenzhaliyev⁵, M. B. Triyono⁶, O. N. Duvalina¹, A. V. Kosov¹**

¹Tsiolkovskiy Kaluga State University, Kaluga, Russia,

²Abai Kazakh National Pedagogical University and Satbayev University, Almaty, Kazakhstan,

³National Research Tomsk Polytechnic University, Tomsk, Russia,

⁴Chelyabinsk State Pedagogical University, Ural State Humanitarian-pedagogical University, Chelyabinsk,

⁵Satbayev University, Almaty, Kazakhstan,

⁶Universitas Negeri Yogyakarta, Indonesia.

E-mail: mariam_rav@mail.ru, zhaina.kassym@gmail.com

ENVIRONMENTAL EDUCATION IN THE SYSTEM OF GLOBAL AND ADDITIONAL EDUCATION

Abstract. The purpose of the study is to analyze the significance of the role of global and additional education in the formation of common cultural, common human competencies of future generations. A comparative analysis of the characteristics of the content and forms of global and additional education in Russia and in the world makes it possible to assess the prospects of these types of education from the point of view of environmental education (education and upbringing) as an important component of human competences. Environmental education plays a strategic role in the system of global and additional education. Environmental education - the leading competence of students and trainees in relation to the world around them and themselves: the ability to live in harmony with nature and culture, with themselves and with society - leading orienteer global education. These benchmarks are also guidelines for students' self-development. The article deals with the pedagogical support of person's self-development in the context of solving the problem of self-development of the individual, acting as one of the leaders in the context of the globalization of modern education. The possibilities (pedagogical resources) of the additional education of the person in the self-development of the individual and the realization of pedagogical ideas of Russian space scientists are shown, the appeal to which acquires particular relevance in the light of the globalization of education.

Keywords: the globalization of education, self-development, subjectivity, pedagogical support of self-development of the person, additional education of the person, after-hour activity, cosmism, alternativism.

Introduction. Environmental education plays a strategic role in the system of global and additional education. Environmental education - the leading competence of students and trainees in relation to the world around them and themselves: the ability to live in harmony with nature and culture, with themselves and with society - leading orienteer global education. These benchmarks are also guidelines for students' self-development. In the world community, a system-holistic view of man and the world, science and education, arose at the turn of the XX and XXI centuries. This view presupposes the solution of the global problems of humankind, including the problems of education as a practice of development of the individual and society. Global education is a complex idea that is taught to enhance our understanding of the world. Students learning to be global citizens through global education will be able to learn more about the most significant issues of human life. This is the issues about international communities and migrations, problems of the corruption and social justice issues, problems of poverty and poverty, bioethical and biotechnological problems of mankind, problems of ecology and culture, science and arts, professional life and education, other global events, and international ideas in their typical classroom setting. Global Education will shape the way people understand themselves and the world to help better shape the world. It will foster service learning initiatives and activism within the different community, organizations, and families, and around the world (Friesen, 1995; Gaudiani, 1995). Global education that opens people's consciousness to the realities of the transnational and multi-religion interaction, multiregional and globalized world and awakens them to bring about a world of greater moral and spiritual, justice and equity,

human duties and rights for all. Global education is understood to encompass development education, human rights, and duties education, education for sustainable development, education for peace and conflict prevention and intercultural education; being the global dimension of education for citizenship and ecological harmony (Arpentieva, 2018; Arshinova, Tokar, Kuznetsova, Arpentieva, Kirichkova, Novakov, 2018; Kassymova, Stepanova, Stepanova, Menshikov, Gridneva, Arpentieva, and Merezchnikov, 2018; Lo, 1991; Milone, 1995; Ostheimer, 1995).

Literature Review. Global education promotes constructive humankind values and assists students and teachers (educators) to take responsibility for their actions and to see themselves as global citizens who can contribute to a more peaceful, just, harmonical and sustainable world. Global Education is a dimension that runs through the total schools curriculums, an extra filter to help person and educators make sense of all the information about themselves and the world and opinion. The world is throwing at them (Sinha, & Sinha, 1977; Banks, 2015). On methodology level, it combines some experiential and experimental (scientific) discussion-based activities, a caring, co-operative and open outlook on the classroom and other types of human experience, and core concerns. It combines some experiential and experimental (scientific) discussion about culture and nature of the world, about all countries, regions and groups, about the causes of poverty and inequality (here as well as in other countries), criminality and corruption, about the technical and social environment and about life meaning problems and dimensions. Global Education is an active learning process based on the universal values of love and tolerance, solidarity and co-operation, equality and non-violence, justice and moral, inclusion and participation, nobility and dignity. Global Education begins with raising awareness of global challenges such as poverty, unfair distribution of opportunities and resources, environmental degradation and climate change, violent conflict and non-respect of human rights. It then creates a deeper understanding of the complex underlying issues (Banks, 2015; Harris, and Morrison, 2012). Thereby it aims at changing people's attitudes and encourages them to reflect on their own role in the world. Global education motivates and empowers people to become active as responsible and active "global citizens" (Bajaj, Hantzopoulos, 2016). Global Education is a way of approaching and integrating different knowledge and skills. It integrates everything we teach about life and the world. It broadens understanding of the world and personal life horizons and encourages exploration of all subjects from a global perspective. It also contributes to the whole curriculum and enhances our understanding of the world. This education provides a comprehensive approach to educating for a just and sustainable future. It includes religious and historical trends that have molded our understanding of "peace" and then presents a variety of ways to practice peace education in schools and communities and explains how it can motivate students. The teaching and practice of peace, multicultural and other components of the global education provide a basis of valuable knowledge about resolving conflicts and transforming violence without the use of force, about living in harmony with nature and culture, social and personal essences.

Thus, one of the central ideas of global education is the idea of cosmism and alternativism. At different times and in different countries, the ideas of cosmism were developed by various investigators (I. Goethe, A. Einstein, P. Teilhard de Chardin, É.L. Le Roy, K. Jaspers, J. Nehru, D. Rumi, Chen Yu, Ali Nuri M.Kh. and other). Unfortunately, in Russia global education is a topic not disclosed. A number of similar approaches are devoted to its comprehension, including the research of scientists and practitioners in the field of studies of the evolution of humankind. Among them, we can especially highlight the works of philosophers, scientists, artists, ecclesiastics, who comprehend the co-evolution of man and nature, the role of space in this evolution, cosmism and alternativism (Hollstein, Penth, 1980; Le Roy, 1930; Maralov V, 2004; Perekusikina, 2013; Pushkareva, Pushkarev, Latukha O, 2007; Pushkin, 2012; Rogulin, 1998). We can also single out the work of economists who consider the relationship and role of social, human and cultural capital in the development of production technologies on different turns and within the framework of different models of socio-political and economic development (Tarasenko, 2011a; Tarasenko, 2011). The solution of global problems of the present, ensuring the sustainable development of humankind as a planetary phenomenon, a prosperous future of society assumes the globalization of human consciousness and the concerted actions of the world's population to harmonize relations in the system "man-society-nature" (Tarasenko, 2011a: 335). Globalization today is one of the main factors of civilizational development (U. Beck, Kh. A. Barlybaev, A.S. Panarin, M.A. Muntean, A.D. Ursul, A.I. Utkin, etc.), while the process of globalization is interpreted as the formation of a single interconnected world,

the process of the unification of mankind on a worldwide scale (Kassymova, Stepanova, Stepanova, Menshikov, Gridneva, Arpentieva, and Merezhnikov, 2018; Tarasenko, 2011: 116). According to N.M. Mamedov, "the processes of globalization, unfolding in our time, fundamentally differ from their historical precedents. They embrace the person, society and nature in their multifaceted interrelations, manifest not only in vast territories but on the whole of our planet, in all countries of the world and touch upon vital interests, the future of every inhabitant of the Earth "(Mamedov, 2004: 34). In turn, the modern paradigm of education should reflect the cardinal changes in the character of human development at the beginning of the XXI century. The modern paradigm of education should be aimed at the formation of a personality capable of meeting the challenges of time. According to the researchers: V.V. Kazyutinskiy, A.S. Pushkareva, Yu. V. Pushkarev, O.A. Latukh and others, education is in the epicenter of globalization. The scientists note that it is here that a new generation is being formed, on which the real implementation will depend, both the positive aspects of globalization and the elimination of its negative consequences. Therefore, it is in the sphere of education that one must carefully study the phenomenon of globalization, its driving forces, its consequences, and influence these processes. Education in the modern world becomes an integrating factor and a condition for the development of the individual and the entire world community (there is the satisfaction of both individual and social needs) " (Pushkareva, Pushkarev, Latukha, 2007: 405-406).

At the level of UNESCO and the Council of Europe at the beginning of the XXI century, the concept of global education was formulated: "The Earth is our common home", the main tasks of which are: the formation of an understanding of the world on the basis of holistic (perception of the world as a whole) and humanistic views; education of the person responsible for all forms of life on Earth and in the cosmos; education of a person who is able to combine freedom of choice with personal responsibility for the decisions made, universal human interests with national ones, security in the world with tolerance, friendship among nations, etc. (Bajaj, 2016: 108). Proceeding from UNESCO documents, the main goal of the XXI century education is a full-fledged, qualitative development of the Person, one of the main tasks is the formation of a global understanding of the world. The modern development of the world community requires an innovative education that would form a person's ability to forestall the future and responsibility for it. One of the main objectives of the XXI century education should be to disclose the global interdependence, the integrity of all existing on the Earth and in the Universe, the discovery of the logic of the development of this relationship, the definition of a special role and responsibility of man for preserving this integrity and himself in it (Kassymova, Stepanova, Stepanova, Menshikov, Gridneva, Arpentieva, and Merezhnikov, 2018).

The idea of the formation of global responsibility makes it necessary to orient the modern educational process on preparing students for solving global problems, for spiritual and scientific development of the surrounding world, for the upbringing of moral qualities that meet the imperative of survival and sustainable development of human civilization (Pushkin, 2012: 141). In turn, the formation of global responsibility is an integral component of the process of self-development of the individual, assuming, on the one hand, freedom of choice. On the other hand, responsibility for its implementation. Turning to the definition of freedom, K. Rogers emphasizes that it is not limited to the choice of external alternatives, on the contrary, personal freedom is an existential quality of the individual, the ability to internal choice. Another important aspect of determining freedom is the responsibility for your choice. When a person chooses himself, he learns to take responsibility and keep an answer not only to others (such responsibility is of a formal nature) but also to himself, to his conscience (Rogers, 1994). Existential responsibility is the management of freedom as exits beyond the limits of social existence, which should be directed to the benefit of the person himself and surrounding people, of humanity as a whole. It should be noted that the idea of educating global responsibility was anticipated by Russian and other cosmists and alternativists (N.A. Berdyaev, V.I. Vernadskiy, K.N. Ventzel, V.S. Soloviev, N.K. Rerich and E.I. Rerich, E. I. Blavatskaya, E.T. Faddeev, A. D. Ursul, L. V. Leskov , N.F. Fedorov, N.G. Kholodniy, M. Montessory, K.E. Tsiolkovskiy, A.A. Bogdanov, A.L. Chizhevskiy, P. Teilhard de Chardin, E. Le Roy, K. Jaspers), whose ideas received special relevance in the context of the globalization of education.

In the context of the globalization of education, the following ideas of the philosophy of space education are of particular relevance: comprehension of the infinity of the Universe embodied in the infinity of cognition of the Cosmos and man as its particles; comprehension of the , personal freedom and existential

responsibility for one's choice; comprehension of the interdependence and continuity of man and the Cosmos; comprehension of the integrity of consciousness and a holistic view of oneself and the world around us; the proclamation of the idea of moral Unity of mankind and the Universe; comprehension of the priority of moral values and aims in the development and self-development of the individual and the search for ways of their development in education; comprehension of the leading task of education the creation of conditions for making a person highly competence, reflexive and moral, and therefore more perfect and happy; comprehension of the task of education as the creation of conditions for self-development, which can be embodied in the content of education and the educational methods used, techniques, technologies (Arpentieva, 2018; Arshinova, Tokar, Kuznetsova, Arpentieva, Kirichkova, Novakov, 2018; Kassymova, Stepanova, Stepanova, Menshikov, Gridneva, Arpentieva, and Merezhnikov, 2018).

The main feature of cosmism and alternativism is not in the contemplative attitude of man to the Earth and the Universe, but in the formation of his active position, since man is called upon to creatively and responsibly transform this World. It was within the framework of cosmism and alternativism at the beginning of the XX century that an understanding of the responsibility of the mind for resolving the contradictions between man and mankind, man and nature was born. Man is a creator, not a destroyer, Therefore cosmicists have always affirmed the priority of moral education. Perfection and self-development of man, in the opinion of space scientists, is the main task of pedagogy (V.I. Alekseeva, A.G. Gacheva, N.K. Gavryushin, V.E. Ermolaeva, V.V. Lytkin, V.M. Mapelman, I.I. Mochalov, S.G. Semenova, L. V. Fesenkova, K. Kh. Khairullin, L. V. Shaposhnikova, V. N. Yagodinskiy). The objectives of education, reflecting the axiological ideas of cosmism and alternativism, can be formulated as follows: child education as a citizen of the universe; The result should be a person's awareness of the community of his life with the life of the cosmic; child education as a free creative person (development of individuality, personal self-awareness); the result should be an individual's awareness of the meaning of his life in connection with the meaning of the existence of mankind and the world; child education as a member of society (development of social consciousness) and as part of the natural community; the result is a person's realization of his unity with humanity as a collection of individuals rising to higher forms of harmonic existence, and unity with the life of the Planet (Perekusikina, 2013; Rogulin, 1998). The main "point of growth" of the modern educational system should be the formation of a new cosmic outlook for persons and teachers, the emergence of new meaningful landmarks as a result of comprehension by each person of the grandeur of its existence and purpose. The content of the educational process can be presented in the form of knowledge of the scientific and philosophical nature of the laws of the cosmos, the harmonious unity of man, mankind and the universe, the need to maintain and develop the original unity. Today, the pedagogy of the ideas of cosmism and alternativism, which found their actualization in the context of the globalization of education, can be presented in the context of educational practice for the implementation of pedagogical support for the self-development of persons in the conditions of education. The definition of the category of pedagogical support for self-development is based on the theoretical constructions proposed by V.G. Maralov, V.I. Slobodchikov and E.I. Isaev; V.E. Rogulin, other scientists. So, according to V.G. Maralov, the process of pedagogical support of personal self-development is an educational practice, involving the inclusion of an adult in the educational process with the goal of creating conditions for self-development, self-movement in the activities of all subjects of interaction (Maralov, 2004). According to V.I. Slobodchikov and E.I. Isaev, self-development is understood as the process of becoming "subjectness" in a given period. Self-development presupposes, on the one hand, personal freedom, on the other hand, responsibility before itself (Slobodchikov and Isaev, 2000). V.E. Rogulin gave a description of the ideas of cosmism and alternativism in the context of social and pedagogical problems (Rogulin, 1998).

We believe that the greatest efficiency and effectiveness of psychological and pedagogical support for self-development of the person of different age groups is achieved in conditions of additional education. This is because the environment (conditions) of additional education for person have a number of important educational resources (opportunities) (Kassymova, Stepanova, Stepanova, Menshikov, Gridneva, Arpentieva, and Merezhnikov, 2018): the priority in personal development belongs to "self-processes" (self-knowledge, self-development, self-actualization, self-improvement, self-forecasting). This priority is expressed in providing the child with freedom of choice, taking into account the individual needs of the child and his family due to the variability and integrative character of complementary education. It manifests itself in the expansion and deepening of the educational space; the educational environment of

the person's association is favorable for the person to manifest their "I", self-expression in the circle of peers; person's association is a favorable environment for the formation of the subjectivity of the child, in the equal dialogue between the teacher and the child, the co-existence of children and adults is born; the absence of universal, uniform for all standards of the content of education and strict regulation of the educational process creates favorable conditions for creativity, initiative, success, self-knowledge, and self-development; in additional education there are conditions for the development of independence and individuality, responsibility and initiative of the child. These conditions arise, among other things, thanks to the person's self-government, which presupposes the responsible execution of various social roles; in additional education, there is a consideration of the pedagogical principle of the adoption and protection of the individual interests of the child. On the contrary, accounting for his academic merits is not the most important. The main thing - the creation of a teacher situation of success. Psychological and pedagogical support of the personal self-development in supplementary education is the creation of conditions conducive to the development of the subjectivity of person in the environment of a child-adult community. Psychological and pedagogical support of the personal self-development is organized in the form of a system of interaction accompanied and accompanying. As a result of the interaction, the child learns ways of independent and optimal (subjectively) realization of personal choice on the basis of the system of value orientations formed, as well as resolving emerging problems that impede self-development. The implementation of pedagogical support for the self-development of the person in supplementary education should take into account the peculiarities of the situation of personal choice. The choice is based on personal self-development. He creates conditions for self-determination.

Psychological and pedagogical support takes into account the following features of personal elections:

- the formation of the personal ideas about the plurality of options (alternatives) for education and life and formation of qualitative characteristics of the choice (the importance of choice, the assumption of responsibility for the choice, the experience of independent choice). Additional education develops a system of personal representations by offering him a system of educational areas of self-realization. Additional education develops the ability to choose by offering the student a system of educational areas of self-fulfillment, and also by creating conditions for the selection of person at different stages of development subjectivity (taking into account their age and other characteristics);

- the procedural aspect of the choice (assessment of the consequences of decision making and choice, the retention of the consequences of the choice, their correlation with the value system in the situation of "crossroads" in the moral choice, trying on probabilistic consequences). The procedural aspect of the choice is supported by an additional education through the development of the value-semantic sphere of the child, motivation for self-development through immersion in the content of additional education. Such education must be saturated with anthropo-cosmic ideas and existential values;

- the determinants of choice (the existence of independence, freedom of choice, the realization of one's vital, moral position at the time of the choice); and availability of readiness for selection (achievement of emotional satisfaction when making a choice, recognition of the decision as the best possible as a basis for self-acceptance, ability and willingness to accomplish independent elections and bear responsibility for them). The determinants of choice are supported by additional education through the search and correction of technologies of psychological and pedagogical support for person's self-development in education. Readiness for choice is supported by a teacher, a psychologist, a social worker by offering the child a system of educational areas of self-realization in supplementary education. They create conditions for making a choice and responsibility for the choice for a person who is at different stages of development of subjectivity (taking into account their age and other characteristics).

Results. The embodiment of the pedagogical ideas of Russian space scientists in the context of psychological and pedagogical support for the self-development of person is seen by scientists today in a number of aspects of the additional education: a) the use of forms of organization of classes that promote the development of personal freedom and the existential responsibility of person (open group discussion, discussion in the form of a television talk show, mini-conferences, trainings, design classes on the declared educational interests of person, research, viewing and discussion of videos with identification actual problems, social design); b) substantive emphasis of educational activities on the study of global and everyday problems; the priority of implementing integrated educational programs of different focus as a

condition for ensuring the formation of a holistic view of themselves and the world around them; c) the orientation of education on the formation and development of the student's awareness of the cause and effect relationships of his and others' actions, the world as a whole. Such awareness creates a basis for the accomplishment of an independent choice, taking into account the study of possible scenarios for the development of events, the investigation of the consequences of certain elections and the activity to implement them. Awareness of the choice contributes to the formation of responsibility for the decisions made; d) development of the person by additional educational programs of aerospace orientation. The development of these programs contributes to the development of the child's motivation for learning about himself and the Cosmos. The realization of its inseparable, involvement in the world around us, the Universe is combined with the formation and development of a truly scientific worldview.

The scientific worldview is based, in this context, on the tradition of cosmism and alternativism, the achievements of the aerospace industry, environmental science and global education. In addition, there is a development of a sense of patriotism and love for the Motherland, for the Earth. Development of cognitive abilities of a person, expansion of their outlook, formation of not only visual-figurative (empirical), but also theoretical thinking develops. In the process of further education, students acquire competencies in the field of research (the ability to put forward hypotheses and find the means of their adequate study). In parallel, the experience of self-knowledge and self-forecasting accumulates. An important part of this experience - personal and creative achievements as the results of student self-realization in additional education.

The content component of education can include the following aspects: providing extensive material for studying biographies of great people; help in understanding the concept of the Highest (the principle of having an ideal); Formation of the idea of Man as the Microcosm, who came to Earth to fulfill his personal mission to free the planet and people from the captivity of death and ignorance; creating conditions for the child to explore his personal potential and the capabilities of the "higher self", as well as studying ways of self-improvement; education of positive creative attitude to any kind of work, including educational, family, professional, understanding of the importance of meaningfulness and value fullness of labor; help in understanding the value of spiritual relationships and training in the norms of highly moral human relations; providing knowledge about Nature, about the laws of development and co-evolution of man and nature; the formation of an integral picture of the world, and, consequently, of the rich inner world of man, of love for the external world, its beauty and harmony.

As a result of the implementation of pedagogical support for the self-development of the person in supplementary education, the educational resources of the educational environment of basic and additional education are updated. Many important moments of human life are being formed and are developing: person is motivated to develop their subjectivity, their desire to know themselves and the world, to find their unique place in the world; there is a formation of a subjective position, one's own point of view, the ability to express one's opinion and defend one's position, to follow the principles of one's own; the idea of plurality of elections and freedom in decision-making is formed; the perception of the world as an integrity (as a unified system) is formed, the level of awareness of the world and life, their cause-and-effect relations, increases. Psychological and pedagogical support helps to understand the relationship between the choice of a person and its consequences. Thanks to him, the person's awareness of their involvement in the surrounding world, the country, the planet is actively formed; the person form and develop responsibility for their own destiny, life of their relatives, the country, the planet; increased awareness of their actions, the results of their choice, predicting the consequences of their decisions and actions from the point of view of their influence on man, nature, the planet; there is a statement in the minds of person of the priority of universal human, general cultural values; orientation is formed on humanistic principles in the exercise of independent choice; the ability to see alternative ways to solve the problem is formed and come to an independent choice; the motivation and willingness to accomplish independent elections based on value orientations are formed; criticality of thinking, overcoming of stereotypes, ability to display the individuality in different kinds of activity develops. These results of additional education directly correlate with the tasks of global education. Global education is the development of global thinking, the upbringing of a sense of the involvement of a person in the life of the planet Earth, our common home, the establishment of harmonious human relations with nature, with ourselves.

Global competency is defined in various ways, for example (Mestenhauser, 2011: 198; Hamza, 2010; Russo, & Sans, 2009; Reimers, 2009), global competency is the ability to define as Investigate the World, that is, to be aware of and interested in the world and its workings. This ability involves investigate and exploring globally significant questions and creating a coherent and complex response that considers multiple levels and perspectives and draws useful, defensible and creative conclusions. Global competency is the ability to weigh perspectives (of the understanding and activity). Students recognize that they have a particular perspective of the understanding and activity and those others may or may not share it. They can then articulate and explain the perspectives of the understanding and activity of other people and can compare their perspective with others and construct a new understanding and ways of action and life. Global competence entails effective and productive interaction and communication—both verbal and non-verbal with diverse audiences, opponents and proponents. Globally competent students are a proficient different language. They are also skilled users of digital media and other modern technology. Global competency is the ability to take action and participation. Globally competent students are able to weigh options based on evidence and insight, assess the potential for impact, consider possible consequences, and act and reflect on those actions. Globally competent students are able to cooperate and serve to other individuals and organizations. “Global competency [is] the knowledge and skills that help people understand the flat world in which they live and the skills to integrate across disciplinary domains to comprehend global affairs and events and to create possibilities to address them. Global competencies are also the attitudinal and ethical dispositions that make it possible to interact peacefully, respectfully and productively with fellow human beings from diverse geographies.” (Reimers, 2010: 283). In education, the harmony of interests of a person, society, state, and business is necessary. Global education is education aimed at the formation and development of a person as an individual, as an individual and a professional, as a partner and member of the community. It is aimed at actualization and realization of the essence of man, his abilities and purpose in a certain cultural, historical and socio-political environment (Gunesch, 2004; Arpentieva, Duvalina, Gorelova, 2017; Arpentieva, 2016a; Kassymova, Stepanova, Stepanova, Menshikov, Gridneva, Arpentieva, and Merezchnikov, 2018).

“The time will come, and we will realize our kinship with Cosmos, our sonship in full and perfect degree, and we will gain Cosmic consciousness and reveal it in life. None of us can be excluded. We will deepen and expand our consciousness, and it will lead us to the most complete and perfect knowledge of our “I”, our close connection and kinship with the Cosmos and Humanity, and from the depths of our spiritual life, we will shine like Cosmic Stars and Creative Humanity. They will illuminate all things before us, we will find them in ourselves, and our life will become one and the Holistic Creative life of the Cosmos and of all Humanity ” (Ventzel, 1925: 15). Due to more or less directed space education in the form of a global or additional education for adults and children, a rapid expansion of cosmic consciousness is characteristic of the consciousness of a person of confusion; scientifically grounded and practically confirmed awareness of its inseparable relationship with the Cosmos; the need to understand their place and role in the universe, the universe as a whole; a holistic approach to understanding the world and understanding oneself in the world, dialogue with the world; ecological and ethical approaches in the study of life and the universe (L. Gindilis, G. Svyatokhina, I. Feodulova, N. Tarasenko, K. Sumnitelny N. Dmitrieva, et al.). Philosophical-anthropological and pedagogical views and works of K. Ventzel, M. Montessori, K.E. Tsiolkovskiy, N. Fedorov, K.S. Lewis, and other researchers lead scientists and specialists to the conclusion about the relevance of space education for the modern educational process. At the same time, cosmic pedagogy of K. Ventzel, M. Montessori's idea of “cosmic education” and other theories of Russian and world cosmism are universal theories of the educational process, denoting the goal of upbringing and education, as well as human activity - becoming a cosmic creature and the fulfillment of its purpose - as part of the universe. K. Sumnitelny and other researchers note the importance of cosmic education (Sumnitelny, 2002): the acquisition of landmarks in the world of objects and the ability to arrange chaos, which for an ordinary, devoid of cosmic understanding, is the world around; creating on the basis of a holistic and “normalized” psyche a realistic picture of the world based on human experience (scientific knowledge) and independently determined paths of personal development; working out a position of life based on cosmic morality and expressing the subject's readiness for a creative transformation of the surrounding reality. Both in global and in additional education, the teacher needs to focus the attention of schoolchildren, students and another person on the following aspects of the process of forming a scientific worldview (Arpentieva, 2016b; Bazaluk, 2013; Matusevich, 2013): a) disclosure of the ideological nature of the process of knowledge of the Universe, for which it is necessary to acquaint students with the history of the development of ideas about the Universe, as well as with constantly

improving methods of astronomical research; b) attracting students' attention to the philosophical and ideological aspects of the basics of astronomy and astronautics; the formation of students a generalized view of the astronomical picture of the world; c) the formation and development of students' philosophical style of thinking based on the analysis of the most important discoveries in the field of astronomy. Astronomy, cosmology, and cosmonautics pose and strive to solve many fundamental issues of the universe, inextricably linked with the worldview of man, with the problems of human existence and humanity, with life and mind in the Universe, with an awareness of the role of the mind in the Universe.

Conclusion. It can be concluded that the educational process, which in its goals, principles, content, and technology relies on the global ideas of the philosophy of cosmism and alternativism as a methodological basis, can provide an effective solution to the problem of the formation of the existential responsibility of the individual in the conditions of a globalizing world. Approaches to the organization of pedagogical support for the self-development of a person can find wide application in the educational practice of additional education and extracurricular activities in conditions of development Federal state educational standards. Pedagogical support for person's self-development in the conditions of education globalization is aimed at the global competency of the person.

Following the analyzed researchers, we can formulate a number of main groups of tasks of global and additional space education:

- to ensure, on an individual and universal scale, the formation and development of the self-identification of man as a planetary-cosmic being, including people's awareness of their purpose and the significance of their actions and choices for the development of civilization; to stimulate and guide the realization of the spiritual and creative intentions of each person in the interests of the qualitative development of the noosphere on the scale of earth and space;

- to improve ideas about the person of the future, the characteristics of which allow the noosphere to develop, prepare (train and educate) new generations in the direction of this presentation, develop and implement a system to stimulate the development of each person and humanity as a whole, provide people with equal and developmental conditions for self-realization and mutual implementation in the conditions of cooperation and competition;

- to ensure the transition from the realization of humanity in predominantly material forms (material products of labor) to material-virtual and spiritual-virtual forms, the attainment by mankind and each individual person of a state in which the values and goals of spiritual and moral development will lead;

- the consistent development of studies of planetary and cosmic evolution, the structure and mechanisms of the life of the Universe, in order to ensure the resettlement and reproduction of the Earth's noosphere on the scale of the Solar System and beyond (into galactic and intergalactic spaces);

- explore and create conditions for the successful formation and development of a perfect wandering psyche that has all the traditional and new virtues necessary for life in space: for the psyche born and formed under the conditions of an artificial material object (spacecraft, etc.) traveling in outer space;

- to develop the idea of humanity about itself as a single, synergistic, systemic education, including people as beings, guided by the goals and values of comprehending oneself and the world.

М. Р. Арпентьева¹, Г. К. Касимова², С. В. Лавриненко³, З. И. Тюмасева⁴,
Г. В. Валеева⁴, О. Б. Кенжалиев⁵, Б. М. Трияно⁶, О. Н. Дувалина¹, А. В. Косов¹

¹Циолковский атындағы Калуга мемлекеттік университеті, Калуга, Ресей,

²Абай атындағы Қазақ ұлттық педагогикалық университеті және

Қ. И. Сәтбаев атындағы Қазақ ұлттық техникалық университеті, Алматы, Қазақстан,

³Томск ұлттық политехникалық зерттеу университеті, Томск, Ресей,

⁴Челябинск мемлекеттік педагогикалық университеті,

Орал мемлекеттік гуманитарлық-педагогикалық университеті, Челябинск,

⁵Қ. Сәтбаев атындағы Қазақ ұлттық техникалық университеті, Алматы, Қазақстан,

⁶Ягьякарта мемлекеттік университеті, Индонезия

ЭКОЛОГИЯЛЫҚ ІЛІМДЕ ҒАЛАМДЫҚ ЖӘНЕ ҚОСЫМША БІЛІМ БЕРУ

Аннотация. Зерттеудің мақсаты – болашақ ұрпақтың ортақ мәдени, ортақ адами құзыреттілігін қалыптастыруда жаһандық және қосымша білім беру рөлінің маңыздылығын талдау. Ресейде және әлемде жаһандық және қосымша білім берудің мазмұны мен формаларының салыстырмалы талдауы білім берудің осы түрлерін болашақта экологиялық білім беру (білім беру және тәрбиелеу) тұрғысынан маңызды деп бағалауға мүмкіндік береді. Бұл адамның құзыреттілігінің компоненті. Экологиялық ілім жаһандық және қосымша білім беру жүйесінде стратегиялық рөл атқарады. Экологиялық

ілім – студенттер мен тәрбиеленушілердің қоршаған ортаға және өздеріне қатысты: табиғатпен және мәдениетпен үйлесімді өмір сүру қабілеті, өздері және қоғаммен бірге жетекші бағдарлы әлемдік білім беру. Бұл бағдарлар студенттердің өзін-өзі дамытуға арналған әдістемелік нұсқаулар болып табылады. Мақалада қазіргі заманғы білім беру жаһандану жағдайында көшбасшылардың бірі ретінде әрекет ететін адамның өзін-өзі дамыту проблемасын шешу контекстінде адамның өзін-өзі дамытуын педагогикалық қолдау. Жеке тұлғаның өзін-өзі дамытуына және орыс ғарыш ғалымдарының педагогикалық идеяларын жүзеге асыруға адамның қосымша білім беру мүмкіндіктері (педагогикалық қорлар) көрсетіледі, олардың сұранысы білім берудің жаһандану жағдайында ерекше өзектілікке ие болады.

Түйін сөздер: білімнің жаһандануы, өзін-өзі дамыту, субъективтілік, тұлғаның өзін-өзі дамытудың педагогикалық сүйемелдеуі, адамның қосымша білім беруі, кейінгі қызмет, космизм, альтернативизм.

**М. Р. Арпентьева¹, Г. К. Касымова², С. В. Лавриненко³, З. И. Тюмасева⁴,
Г. В. Валеева⁴, О. Б. Кенжалиев⁵, Б. М. Трияно⁶, О. Н. Дувалина¹, А. В. Косов¹**

¹Калужский государственный университет им. К. Э. Циолковского, Калуга, Россия,

²Казахский Национальный педагогический университет им. Абая и

Казахский национальный технический университет им. К. И. Сатпаева, Алматы, Казахстан,

³Национальный исследовательский Томский политехнический университет, Томск, Россия,

⁴Челябинский государственный педагогический университет,

Уральский государственный гуманитарно-педагогический университет, Челябинск,

⁵Казахский национальный технический университет им. К. И. Сатпаева, Алматы, Казахстан,

⁶Джокьякартский государственный университет, Индонезия.

ЭКОЛОГИЧЕСКОЕ ОБРАЗОВАНИЕ В СИСТЕМЕ ГЛОБАЛЬНОГО И ДОПОЛНИТЕЛЬНОГО ОБРАЗОВАНИЯ

Аннотация. Цель исследования – проанализировать значение глобального и дополнительного образования в формировании общекультурных, общечеловеческих компетенций будущих поколений. Сравнительный анализ характеристик содержания и форм глобального и дополнительного образования в России и в мире позволяет оценить перспективы этих видов образования с точки зрения экологического образования (образования и воспитания) как важного компонента человеческих компетенций, включая компетенции здоровьесбережения и развития. Экологическое образование играет центральную, стратегическую роль в системе глобального и дополнительного образования. Экологическое образование – ведущая компетенция студентов и школьников по отношению к окружающему их миру и себе: способность жить в гармонии с природой и культурой, с собой и с обществом, развиваться – ведущие ориентиры глобального образования. Эти ориентиры также являются руководством для самовоспитания и самообучения в контексте саморазвития студентов. В статье рассматривается педагогическая поддержка саморазвития личности в рамках проблемы саморазвития личности, данная проблема – одна из центральных в условиях глобализации современного образования. Авторами показаны возможности (педагогические ресурсы) дополнительного и глобального образования в (само)развитии личности, в том числе в контексте реализации педагогических идей российских и мировых ученых-космистов. Обращение к этим идеям и практикам развития человека и человечества приобретает все большую значимость и актуальность в свете глобализации образования.

Ключевые слова: глобализация образования, саморазвитие, субъективность, педагогическая поддержка саморазвития личности, дополнительное образование личности, внеурочная деятельность, космизм, альтернативность.

Information about authors:

Arpentieva M. R., grand doctor (Grand PhD) of psychological Sciences, associate professor, corresponding member of the Russian academy of natural sciences (RANS), professor of the department at the development and education psychology, Tsiolkovskiy Kaluga state University, Kaluga, Russia; mariam_rav@mail.ru; <https://orcid.org/0000-0003-3249-4941>

Kassymova G. K., PhD doctoral candidate, senior lecturer at Abai Kazakh National Pedagogical University; Satbayev University in Almaty, Kazakhstan; zhaina.kassym@gmail.com; <https://orcid.org/0000-0001-7004-3864>

Lavrinenko S. V., Senior Lecturer of the I. N. Butakov Scientific and Educational Center of the School of Energy Engineering of the National Research Tomsk Polytechnic University, Tomsk, Russia; serg86@tpu.ru; <https://orcid.org/0000-0002-1471-6152>

Tyumaseva Z. I., grand doctor (grand PhD) of pedagogical sciences, director of the Institute of Health and Human Ecology of the Chelyabinsk State Pedagogical University, head of the Department of Life Safety and Biomedical Disciplines, Higher school of physical culture and sports, Ural state humanitarian-pedagogical University, Chelyabinsk.

Valeeva G. V., Candidate (PhD) of Psychological Sciences, Associate Professor of the Department of Life Safety and Biomedical Disciplines, Higher school of physical culture and sports Ural state humanitarian-pedagogical University, Chelyabinsk.

Kenzhaliyev O. B., PhD doctoral candidate, at Satbayev University, Almaty, the Republic of Kazakhstan; olzhas.kenzhaliyev@gmail.com; <https://orcid.org/0000-0002-3776-9724>

Triyono M. B., Head of TVET Graduate School, Universitas Negeri Yogyakarta, Indonesia; bruritriyono@uny.ac.id; <https://orcid.org/0000-0001-5720-9604>

Duvalina O. N., Candidate (PhD) of Psychological Sciences of psychological Sciences, associate professor, associate professor of the department at the development and education psychology, Tsiolkovskiy Kaluga state University, Kaluga, Russia; gladis75@mail.ru

Kosov A. V., Candidate (PhD) of Psychological Sciences of psychological Sciences, associate professor, associate professor of the department at the social and organizational psychology, Tsiolkovskiy Kaluga state University, Kaluga, Russia; sanslav@kaluga.net; <https://orcid.org/0000-0002-1691-8487>

REFERENCES

- [1] Arpentieva M.R. (2016a) Innovative and traditional approaches to students' preparation for final attestation: the problem of learning styles // Testing and language progress assessment: traditions and innovations. Collection of scientific articles and materials of the international conference. March 21-22, 2016, Surgut. Southampton, Surgut: Southampton Solent University, Surgut State University: 5-11.
- [2] Arpentieva M.R. (2016b). Xenopsychotherapy: space travel and transformations in science fiction. *Philosophy and Cosmology*. 1 (15): 163-181.
- [3] Arpentieva M.R. (ed.) (2018) Psychodiagnostics, counselling and mediation in professional and unprofessional relationships. Canada, Toronto: Altaspera Publishing & Literary Agency Inc., 1-664.
- [4] Arshinova V.V., Tokar A.V., Kuznetsova N.V., Arpentieva M.R., Kirichkova M.E., Novakov A.V. (2018) Travel therapy or psychotherapeutic tourism // Service in Russia and abroad. 12(3): 6-24. <https://doi.org/10.1051/mateconf/201710201002>
- [5] Arpentieva M.R., Duvalina O.N., Gorelova I.V. (2017) Intersubjective management in aerospace engineering // In: Borikov V., Uchaikin S., Baranov P., Ivanova V., Dolgih A. and Ignatovskaya A. (Eds.) 5th International Forum for Young Scientists "Space Engineering" MATEC Web of Conferences. 12-14 April 2017. Tomsk: National Instruments Russia Corporation: 01002. doi.org/10.1051/mateconf/201710201002
- [6] Almurzayeva B., Kussanova B., Summers D., Maydangalieva Z. (2019). Bilingual education in former soviet country: perspective and problems // The bulletin, of the National academy of sciences of the Republic of Kazakhstan. 2019. 2 (378), 43-54. <https://doi.org/10.32014/2019.2518-1467.39>
- [7] Bajaj M., Hantzopoulos M. (Ed.) (2016) Peace education: international perspectives. Bloomsbur. 1-304.
- [8] Banks J.A. (2015) Cultural Diversity and Education. London, New York: Routledge: 1-366.
- [9] Banks J.A. (2015) Multicultural Education: Issues and Perspectives. New York: Wiley: 1-360.
- [10] Bazaluk O.A. (2013) Cosmic education: New Realities // In: O. A. Bazaluk (ed.) Image of a human being of the future. Kiev: MFKO, 3: 13-26.
- [11] Burganova R.I., Abdugalina S.E., Tuyakova A.E.. Improving the quality of education through student-centered education // News of the national academy of sciences of the Republic of Kazakhstan. Series of social and human sciences. 2018. Vol. 6, N 322. P. 102-104. ISSN 2224-5294. <https://doi.org/10.32014/2018.2224-5294.40>
- [12] Friesen D., Kang H., McDougall B. (1995). Toward Global Horizons: Student Stories from an International Teacher Education Project // Action in Teacher Education. 17(2). 40-46. <https://doi.org/10.1080/01626620.1995.10463242>
- [13] Gaudiani C.L. (1995). Global social development: Higher education's next moral commitment // *Educational Record*, 76(1): 6-13.
- [14] Gunesch K. (2004). Education for cosmopolitanism // *Journal of Research in International Education*. 3(3), 251-275. <https://doi.org/10.1177/1475240904047355>
- [15] Hamza A. (2010). International experience: An opportunity for professional development in higher education // *Journal of Studies in International Education*. 14(1): 50-69. <https://doi.org/10.1177/1028315308329793>
- [16] Harris I., Morrison M. (2012). Peace education. London: Jefferson, New York: McFarland: 1-292.
- [17] Hollstein W., Penth B. (1980). Alternativprojekte: Beispiele gegen Resignation // Reinbeck bei Hamburg: Rowohlt: 1-459.
- [18] Kassymova G.K., Stepanova G.A., Stepanova O.P., Menshikov P.V., Gridneva S.V., Arpentieva M.R., Merezhnikov A.P. (2018) Self-development management in educational globalization // *International Journal of Education and Information*. 12: 171-176.
- [19] Kassymova G.K., Kosherbayeva A.N., Sangilbayev O.S., Schachl H., Cox N. (2018). Stress management techniques for students. Proceedings of the International Conference on the Theory and Practice of Personality Formation in Modern Society (ICTPPFMS 2018). <https://doi.org/10.2991/ictppfms-18.2018.10>
- [20] Kenzhaliev O., Salykova L., Ilmaliev Z., Sadykova (2018). Overview of problems in the management of commercialisation of capital-intensive scientific developments // *Kompleksnoe Ispol'zovanie Mineral'nogo syr'ya*. 306 (3), 101-108. <https://doi.org/10.31643/2018/6445.23>
- [21] Kassymova G.K., Arpentieva M.R., Kosherbayeva A.N., Triyono M.B., Sangilbayev S.O., Kenzhaliyev B.K. (2019). Science, education & cognitive competence based on e-learning // *Bulletin of the National academy of sciences of the Republic of Kazakhstan*. 2019. (1). P. 269-278. <https://doi.org/10.32014/2019.2518-1467.31>
- [22] Le Roy E. (1930) Les Origines Humaines et l'Evolution de l'Intelligence // *Journal of Philosophy*. 27(18): 497-500. <https://doi.org/10.2307/2017010>
- [23] Lo D.E. (1991). Implementing a global curriculum // *Gifted Education International*. 7, 146-148.
- [24] Mamedov N.M. (2004) Globalization as a modern state of social development // *The era of global change*. Moscow: 34-36.
- [25] Maralov V.G. (2004) Fundamentals of self-knowledge and self-development: training. allowance. Moscow: Academy: 1-256.

- [26] Matushevich T.V. (2013). Space education: modern philosophical and pedagogical discourse // *Philosophy and Cosmology*. 1 (11): 183-189.
- [27] Mestenhauer J.A. (2011). Reflections on the past, present, and future of internationalizing higher education: Discovering opportunities to meet challenges. Minneapolis: GPSA, University of Minnesota: 1-198.
- [28] Milone M.N. (1995). Global education begins at home // *Technology & Learning*. 16(3): 48-50 52.
- [29] Ostheimer S. (1995). Internationalize yourself and your classes, school, and community // *Business Education Forum*. 76(1): 44-47
- [30] Perekusikina N.A. (2013) Value-goal priorities of Russian cosmism as the world outlook basis of the educational process // *Bulletin of the Buryat State University*. 1:64-68.
- [31] Pushkareva E.A., Pushkarev Yu.V., Latukha O.A. (2007) Russian education in the context of the innovative formation of the global organization of the socio-cultural space. Problems of the logic of sociocultural evolution and the philosophy of Western Siberia. Biysk: BSPU them. V.M. Shukshin: 404-405.
- [32] Pushkin I.M. (2012) Formation of the global human responsibility in the light of the reforms of the national education // *Bulletin of the Northern (Arctic) Federal University. Series: Humanities and Social Sciences*. 1: 141-145.
- [33] Reimers F. (2009). Global Competency' Is Imperative for Global Success // *Chronicle of Higher Education*. 55(21): A29.
- [34] Reimers F. (2010) Educating for Global Competency. In: Cohen J. & Malin M. (Eds.), *International perspectives on the goals of universal basic and secondary education*. New York: Routledge Press: 183-202.
- [35] Rogers K. R. (1994) *A look at psychotherapy. The formation of man*. Moscow: Progress: 1-480.
- [36] Rogulin V.E. (1998) Russian cosmism and the modern alternative movement in the search for a new civilizational model. Ryazan: ROIRO Publ.: 1-188.
- [37] Russo A., Sans A. (2009). Student communities and landscapes of creativity: How Venice "The World's most touristed city" is changing // *European Urban and Regional Studies*. 16(2): 161-175. <https://doi.org/10.1177/0969776409102189>
- [38] Sinha A.K., Sinha U.P. (1977). Some socialization correlates of worldmindedness // *Asian Journal of Psychology and Education*. 2(3), 27-30.
- [39] Slobodchikov V.I., Isaev E.I. (2000) *Psychology of human development. Development of subjective reality in ontogenesis*. Moscow: School-Press: 1-324.
- [40] Sumnitelnyy K.E. (2002) *Pedagogicheskaya sistema M. Pedagogical system of M. Montessori in the field of Russian education* // *Bulletin of Moscow State Pedagogical University*. 1: 96-100.
- [41] Sheriyev M.N., Atymtayeva L.B., Beissembetov I.K., Kenzhaliyev B.K. Intelligence system for supporting human-computer interaction engineering processes // *Applied Mathematics and Information Sciences*. 2016. 10(3). P. 927-935. <https://doi.org/10.18576/aims/100310>
- [42] Tarasenko N.G. (2011a) The problem of the formation of an integral worldview of the individual in the context of ideas of the philosophy of cosmism // *Scientific Bulletin of Belarus State University. The humanities*. 6 (101): 335-342.
- [43] Tarasenko N.G. (2011b) The value of K.N. Ventzel's cosmic pedagogy and M. Montessori's ideas about "Cosmic education" in resolving the problem of the formation of a person's world outlook // *Historical and Socio-Educational Thought*. 5: 116-121.
- [44] Ventzel K.N. (1925) Notes on cosmic education // *Scientific archive of the Russian Academy of Education. Foundation*. 23, 1: 1-16.