



# PROFESSIONAL COMPETENCIES AND EDUCATIONAL INNOVATIONS IN THE KNOWLEDGE ECONOMY

Collective monograph

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**Natalia Polischuk**

*Doctor of Philosophical Sciences, Associate Professor,  
The senior lecturer of faculty of the theory and technique of vocational training,  
Rivne State Humanitarian University,  
Rivne, Ukraine*

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**METHODOLOGICAL AND EDUCATIONAL STRATEGIES OF A YOUNG PERSON'S FORMATION OF THE MODERN AND FUTURE CENTURY**

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**Abstract.** *It is shown that now there are fundamental changes in the life of society, especially the younger generation, under the influence of information and high-tech progress, natural and civilizational changes that occur at the present stage of civilization development and acquire planetary and space significance. As a result, the relevance of the theoretical understanding of modern knowledge about man has increased immeasurably, as well as the integral and methodological functions of the philosophy of education and pedagogy in establishing mutual understanding and cooperation between various branches of human scientific research. It is proved that the problems of the viability of modern humanity are not unreasonably called global-crisis, catastrophic and fundamentally unsolvable, that is, which can not be solved at all for the current and future social and civilizational conditions, unless humanity will carry out space expansion to the exoplanets of our galaxy. Toward this end, the existing education system should be turned into a noosphere-space system, at least until the middle of the twenty-first century, using noosphere-space-oriented pedagogy. Therefore, a new set of philosophical, scientific and pedagogical priorities of educational strategies have been proposed, which are action plans for the future, namely: 1) the formation of an ideal image of the future young man by upbringing space consciousness; 2) the formation of new spirituality: celestial (according to M. Berdyaev) with noosphere thinking (according to V. Vernadsky) and space at the same time (according to K. Tsiolkovsky); 3) the formation of the youth eco-climatic philosophy and progressive mentality. Thus, the creation of an educational strategy using noosphere space-oriented pedagogy in the context of the development of both information and high-tech progress and civilizational challenges should become an intellectual basis for modern and future generations.*

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**Introduction.**

The current fundamental changes in the society life, especially the younger generation, under the influence of information and high-tech (IHT) progress, which was developing from the end of the twentieth century and in the early twenty-first century, is based on nano-, bio-, infoindustry, cognitive and socio-humanitarian sciences and technologies, space, electronic and hypercomputer technology, robotics, artificial intelligence and genetic engineering, etc., natural and civilizational changes occurring at the present stage of civilization development and acquiring planetary and space significance. The problems of the viability of modern humanity are not unreasonably called global-crisis, catastrophic and fundamentally unsolvable. Because they can not be solved according to the present and future social and civilizational terms, if the humanity will not make the space expansion to exoplanets of the space, which there are one billion only in our galaxy, the

Milky Way, from which 2500 exoplanet candidates are very similar to the Earth where there are oceans of water and, therefore, the natural conditions are similar to the Earth [1]. That is, to create a qualitatively new noosphere—space civilization on these exoplanets is possible if they are mastered by representatives of mankind. [2]. We have such a real and specific meaning of the current historical stage with the uniqueness and complexity of nature global-crisis at the end of the twentieth century, and now, in the early twenty-first century, catastrophic problems (educational, spiritual and mental, eco—climatic, anthropological and demographic, energy resource, supply and fresh, political and military etc.). The successful solution of these problems and ensuring the existence of mankind is possible only under the condition of its space expansion. Thus, the current stage of human existence is conditioned by the extreme limitation of the time allotted for solving these problems, so the urgent task is to create upward favorable messages in the twenty—first century, which should become crucial for the current human civilization. Humanity today suffers not so much from a lack of scientific, technical or cultural means which are necessary to solve global crisis problems, but from a lack of education, spirituality, wisdom and the will to use the available powerful means to create a noosphere-space civilization for the benefit of the individual and the entire society, because, despite all its shortcomings, man still possesses the necessary creative and spiritual power to create a safe and almost eternal noosphere-space world of their existence. Mark Tehmark one of the most authoritative researchers of artificial intelligence and the founder of the Institute of future life, confirms these words, – "Since 14 years old I have heard about the nuclear arms race, I'm afraid that the power of our technology is growing faster than the wisdom with which we manage them" [3]. Therefore, the new achievements of humanity, first of all, IHT, should update the defining and vital aspects of the existence of humanity, in particular, education and upbringing and accordingly the formation of fundamental spiritual values among young people.

However, modernization in the educational system encounters difficulties and often does not keep up with changes in the economy, science, technology, culture, social relations and public consciousness. None of the given problems can be solved without fundamental qualitative changes in the education, spirituality and meaning of life of every young person. Only this will ensure that the young person meets the new conditions of life, education and upbringing in the XXI and subsequent centuries [4].

### **1. Educational strategies in the era of modern civilizational progress.**

The National strategy for the development of education in Ukraine for 2012-2021 states: "Education is a strategic resource for socio-economic, cultural and spiritual development of society, improving the well-being of people, ensuring national interests, strengthening international authority and forming a positive image of our state, creating conditions for self-realization of each individual. Looking at certain priorities the most important thing for the state is the education of an innovative type of thinking and culture, the creation of an acmeological educational space taking into account the innovative development of education, the needs of the individual, the needs of society and the state" [5].



The current classical model of education is almost exhausted, because it does not meet the requirements of innovative development of neither the education nor the demands of the individual, neither the needs of society nor the state which face before educational institutions that modern society and production push them, not to mention the coming of the noosphere–space development of mankind in the process of deploying of IHT progress. Therefore, there is already an urgent need to find a new set of philosophical, scientific and pedagogical priorities of educational strategies that will be action plans for the future, namely:

1) forming an ideal image of a young man of the future [6] by educating him of cosmic consciousness. After all, according to E. Kuznetsov, the direction of modern educational policy of the state should be the formation of a cosmic worldview among the population and, first of all, among the young generation [7];

2) forming of new spirituality [4]: divine (G. Berdyaev), as M. Berdyaev believes that the personality is a spiritual and divine category; with noospheric thinking (according to V. Vernadsky), because, according to Vernadsky, noosphere is a reasonable creative power of thought and of human activity in which there is harmony in the interaction of man and nature; however space (K. Tsiolkovsky). K. Tsiolkovsky writes: "Humanity will not remain forever on the Earth, but in the pursuit of light and space, firstly it will penetrate beyond the atmosphere, and then conquer all the near-solar space»;

3) formation of ecological and climatic outlook, progressive mentality [8];

4) creating an educational strategy in the context of the development of both technological progress and civilizational and space challenges, which will become an intellectual basis for modern and future generations [9].

Therefore, you need to change the paradigm of education, which would contribute to the removal of civilization from the global crisis and, consequently, preserve from omnicide and would provide a noosphere-civilizational space development of mankind. In this direction, domestic scientists are actively working, emphasizing the importance of the philosophy of education for teachers, in particular: V. Andrushchenko, O. Bazaluk, G. Beregova, V. Bekh, S. Klepko, K. Korsak, V. Kremen, M. Kultaeva, V. Lutay, I. Predborskaya and many others, both domestic and foreign scientists [6-9].

Noosphere space-oriented pedagogy [10] should be based on the processes of training, education and development of younger generations in the era of IHT progress in the spirit of anthropocosmism, the formation of their noosphere space-oriented consciousness and worldview, high spirituality, progressive mentality, responsibility for the ecological and climatic fate of mankind, and so on, which will be aimed at solving global crises of our time and avoiding possible consequences of planetary and space disasters, in particular, the possible destruction of the Earth by the asteroid "Apophis" in the near future (2029, 2036), according to Michio Kaiku, a world-known scientist in the field of theoretical physics [11].

In this regard, A. Ursul and T. Ursul express their belief that education should become an intellectual and innovative process and one of the main civilizational factors for creating a new society that will help humanity survive, because the inevitable approach of global cataclysms and the most threatening of them – the ecological and climatic one. It is necessary to transform education in accordance with the requirements of modernity, in this aspect it is necessary to transit up to its noospherization and cosmization, in order to solve the global needs of modern, and even more of future generations [12].

## **2. Methodological and educational strategies for the future of humanity.**

Modern man is a magnificent result of the development of intelligence, the processes of organic evolution on the Earth. Its uprising marked the emergence of a new social form of intelligence. Only a person has a unique ability to self-knowledge, cognition and transformation of the surrounding world and save his genotype [13, p. 3]. According to M. Tegmark, "it is not the universe that gives meaning to conscious beings – but conscious beings that give meaning to our Universe. Therefore, the first goal in our wish list for the future should be to preserve (and, hopefully, also spread) biological and / or artificial consciousness in space, rather than bringing it to extinction" [3].

Therefore, man has opened a new era in the knowledge of the Universe by making the flights to the space – it is the transfer of life in the future to the space, first to orbital residential complexes such as O'Neill cylinders, as well as to the moon and Mars, as the most habitable solid-state planets within the Solar system, and subsequently to the exoplanets of our Galaxy and other galaxies. According to the world-famous scientist, Professor Stephen Hawking, the Moon and Mars would be the best places to establish the first colonies, with a lunar base that could be created within 30 years, and a Martian outpost within 50 years. He also suggested not to stay in the Solar system, because it is not eternal, and to take part in a space trip to the nearest star system Alpha Centauri, where astronomers have shown there is an exoplanet known as Proxima B, which is suitable for life [14].

So, it is possible to assume that various forms of life on the Earth and, in particular, human life are priceless and unique phenomena in the Universe. The human genetic pool, which was created in Africa 100 thousand years ago, was the biological basis of huge social progress in the past and does not put any restrictions on the development of civilization in the future [13, c. 3], if only the current global crisis and catastrophic problems are solved.

The development of space technology has expanded human presence in the space, now that space is not viewed only as an object of study and use, but in the context of a long-term place of residence, in particular, the head of Tesla Motors and SpaceX Elon Musk, who claims that his space company will be able to send people to Mars in 2024, and coverage by several planets life can serve as protection from the threat of extinction of mankind [15]. The same opinion is expressed By S. Hawking, who noted that the Earth will eventually be destroyed by the destructive action of asteroids and comets. And this is not science fiction, it is guaranteed by the laws of physics and probability theory.

In order to reduce the risk of destroying humanity, it is necessary to expand into the space, which will completely change the future of humanity. Without this cosmic act, humanity has no future at all. Wherever we move, we will have to create a new civilization, we will have to take practical means to create a new ecosystem, we must learn to survive in an environment about which we know little [14]. Reducing the cost of space flights opens up more and more opportunities for space tourism, and the development of technologies for the extraction of space resources increases the realism of ideas for the deployment of space colonies [16].

So, humanity will either solve the problem of developing exoplanets of space, thereby ensuring its future, creating a noosphere-space civilization based on philosophical, educational, scientific, technical and space achievements already in the XXI century, or it will perish – such a verdict of the historical development of human society that is not subject to doubt! Therefore, the scientific and philosophical problem of cognition of modern man as a spiritual and creative force of society and nature has arisen with all acuteness in our time.

According to Michio Kaiku, from all the tools that mankind has mastered during its entire existence, the most powerful and most effective is science. The incredible wealth that we see around us is due to science [1]. Therefore, in the context of our era we have to raise the following question: does the person think to show the necessary social activity in order to prevent dangerous actions of the reactionary, militaristic forces which most threaten humanity with omnicide and even the destruction of the Earth or to try and limp surrender to the power of uncontrolled processes of modern social crisis-disastrous life?

According to I. Nadolny, V. Andrushchenko, I. Boychenko, V. Rozumnyi, L. Hubersky and others, there is nothing more relevant than the preservation of the earth life on the verge of millennia, preventing a global catastrophe of our mankind. Modern philosophy can not abstract from the possible apocalypse, it must be a philosophy of life, because global problems have become so acute that without their solution it is impossible now to make a realistic representation of modern, and even more the future trends of social development in the civilizational form of the noosphere-space future of mankind [17, p. 574].

In the process of developing scientific, technical and technological progress, intellectual and spiritual development of people becomes a leading factor in the growth of material production. Therefore, science should be focused on the development of intellectual, spiritual and creative potential of a person, because from a sociological point of view, science is a branch of spiritual production and a social institution and performs predicted functions. It is the basis of knowledge and transformation of the world in order to create a noosphere-space civilization. The system of its objective knowledge can act as one of the forms of social consciousness and scientific worldview [17, p. 21, 541-546].

According to Michio Kaiku, the culmination of all these changes will be the formation of a planetary-space civilization, which physicists call the first type of civilization, which we will have reached approximately by 2100. This will be the final product of the powerful, relentless forces of history and technology that are not the subject to anyone's power [11]. In the meantime, humanity is a closed system, since it does not communicate with other space civilizations, and therefore does not exchange any matter, energy, or information with any of them. In such a material system, according to the laws of synergetics, entropy, and, consequently, chaos, eventually a maximum is reached and the system degrades in the direction of destruction. Only the mentioned substances introduced from the outside, including the formation of a noosphere-space civilization with its divine space-oriented spirituality, and deployed within the system through education can ensure not only the preservation of human civilization in changing conditions of functioning, but also the further growth of its order, complexity, and organization of a certain number of appropriate actions [17, p. 207, 209].

### **3. The philosophical and educational aspect of the formation of a new spiritual world of a human and the search for alternative ways of civilization progress.**

In an era of global problems aggravation the philosophy of education is designed to analyze the formation of a new spiritual world of a human and the search for alternative ways of civilization progress. Now it has been updated from the point of view of the problem of human existence in general. To have a future, a person must survive as a species already Homo comicos [18].

Charles Darwin, Karl Marks and Friedrich Engels gave almost an exhaustive answer about the origin of Homo sapiens at the time. Nowadays, more and more attention of philosophers, sociologists, scientists, teachers, psychologists, theists and atheists is attracted by the problem of the evolution of Homo sapiens in Homo cosmos, which will be transformed in long space travel, and what changes will occur in its consciousness [18].

M. Tegmark uses a broad definition of consciousness = subjective experience, which avoids anthropocentrism, regarding the understanding of consciousness. And since there can be no meaning without consciousness, it is not our universe that gives meaning to conscious beings, but conscious beings that give meaning to our universe. It follows that if people are left behind much smarter than machines, we can take comfort in the fact that we are Homo sentiens, not Homo sapiens [3].

Human consciousness, according to Michio Kaiku's definition, is a special form of consciousness that creates a model of the world and then predicts its development over time, evaluating the past to model the future. This requires matching and evaluating a huge number of multiple feedback loops in order to make a decision and achieve some goal. Accordingly, our brain differs from the brain of other animals—especially the enlarged prefrontal cortex, which gives a person the opportunity to "look" into the future [1].

The nature has discovered only 2.5% of the total volume of the brain for mental activity [19, p. 105], with which it is too difficult for us to know even our own part of the General universe, which is now called, probably incorrectly, the Universe, not to mention other parts of the General universe—other universes. So, if the mind is interpreted as the ability to think, reflect and learn objective reality, the level of thinking [20], and the intellect - as the ability to rational knowledge, thinking, especially in its higher theoretical levels [21], then the mental activity of a person has a place to expand, attract the remaining, blocked yet, parts of the brain, this will increase the intelligence of a person.

Scientists have already focused on several genes that have served as the driving force of the evolution of the human brain and they catalogue all the genetic changes that led to the emergence of Homo sapiens and improve its intelligence [1] and will be able to influence these genes, increasing the intelligence, and, consequently, the cosmic consciousness of a person with the goal of turning Homo sapiens into Homo cosmicos. As you know, genetic engineering is a way to penetrate the innermost secrets of human biology, actively interfering with natural processes in the brain in order to change them in practice.

So, now scientists are able to modify not only the body, but also the consciousness and spirituality of modern people, not to mention cyborgs, which will use the capabilities of artificial intelligence and robotics, which have already surpassed any imagination, destroy stereotypes, compete with the human brain, can replace people and live their own lives [22]. According to James Barratt "...the unspiritual qualities of an artificial superintelligence turn into the main issue that needs to be solved in the first place. Before developing technologies that will sooner or later lead to the creation of an artificial superintelligence, it is necessary to raise the question of the relation of an artificial superintelligence to man and humanity "[23].

Yuval Noah Harari argues that geneticists can not only improve the familiar organisms that live now, but also revive creatures that have long been extinct. Disputes are conducted around genetic engineering, which causes ethical, spiritual, moral, and ideological disputes. It is opposed by both monotheists, who argue that man should not usurp the role of God, and atheists, who are not satisfied that scientists are substituting nature for themselves. Human rights campaigners fear that genetic engineering could be used to create supermen-cyborgs that will make other people slaves. That is, the ability of scientists to modify genes too quickly outstrips the ability of mankind to use this skill wisely and far-sighted [24]. We must also take into account the fact that thanks to biological science, the world's bacteriological weapons also have the potential to destroy humanity.

So, now there is a serious danger of unwise interference in natural and human processes, to make mistakes that can have irreversible catastrophic consequences for the humanity. And this is in the conditions of modern social and uncontrolled scientific, technical and IVT development, when humanity is basically deprived of the right to make mistakes, to experiment, with new threatening opportunities for its existence.

In other words, there is an acute problem of social and spiritual and moral control over the processes of scientific and technical IHT development.

The researches regard to the existence of spiritual intelligence and inner spirituality in adolescents, they are conducted by Charmayne Kilcup from the University of Sofia, University of Palo Alto (California, the USA) [25]. They have had a positive result, and some have demonstrated a high level of spiritual intelligence, which is manifested as spiritual values (for example, altruism, compassion, and openness), spiritual experiences and practices related to the divine. In studies by Cheryl Delgado (Cleveland state university, Cleveland, Ohio) [26] spirituality transcends religious or cultural boundaries, it is characterized by faith, a search for meaning and purpose in life, a sense of connection with others, and the transcendence of I, which leads to a sense of inner peace and well-being.

That is why it becomes relevant to use the "Concept of the ideal image of a young man of the future" in educational activities [2], as a person with a noosphere, divine space-oriented spirituality [4] of the future noosphere-space civilization [2]. The education of such a human is a great task of the future system of noosphere-space: philosophy and pedagogy, education, intelligence, and mentality in schools or centres accordingly: the space of spiritually-moral, physically perfect and mentally-emotional hardening with teaching of basic knowledge and skills of long range space flight at a speed close to the speed of light, in conditions of slower flow of time and the respective deceleration of the flow of biological processes, including the process of aging. At the same time, the organisms of space travelers will experience a cosmic evolution, that is the transformation of Homo sapiens into Homo cosmos [18]. The last one will be much more intellectual than the earth man not only morphologically, but also mentally and will become a perfect noosphere-space personality.

After all, according to V. Sheik, if it is not possible to turn the biosphere (and now it is the IHT biocosmosphere—the *author*) into the noosphere in the XXI century, then the existence of a general planetary civilization will be called into question. That is why the study of historical and philosophical aspects of global scientific and technical problems of civilization is of priority interest for modern society and determines its future. The factors for solving these issues are philosophy, culture, science and education [27, p. 3].

In connection with the consequences of IHT progress, education as a system of knowledge, ideas and beliefs of a young person requires urgent changes that should be directed to the noospherization and anthropocosmization of educational subjects from secondary to higher school on the process of formation and development of the noosphere space-oriented future of mankind. In this aspect, it is necessary to develop some measures for noosphere space-oriented education of young people.

Based on the above, it is the teacher who should become the central figure of the modern IHT era in the formation of noosphere space-oriented consciousness and worldview among young people. In our opinion, *the ideal of a teacher* (ideal-educator) is an image of a fully developed person who is able to join the process of IHT revolution, social and professional transformations; a professional who is capable of multi-variant pedagogical

action, predicting possible social results, has methods of analysis and self-control, skills of philosophical and pedagogical understanding of new socio-economic and spiritual and moral conditions of education, adequately assesses new scientific, technical and high-tech beliefs from the standpoint of philosophical and pedagogical vision. And the main directions of the formation of personal characteristics of a modern teacher should be: deepening and expanding the scientific and philosophical outlook; increasing the general culture-spiritual, moral, ethical, aesthetic; constant updating of noosphere-space, scientific-technical and humanitarian knowledge, space and cosmological components of the personality; crystallization of strong-willed qualities; improving pedagogical skills; deepening the organic connection of the teacher with the life of a multinational society, social practice; being wise, believing in good and creating it; using progressive Christian values and the instructions of the Bible.

### **Conclusions.**

Therefore, the problems of the viability of modern humanity are not unreasonably called global-crisis, catastrophic and fundamentally unsolvable, that is, which can not be solved at all under the current social and civilizational conditions, unless humanity will carry out space expansion to the exoplanets of our galaxy the Milky way in order to create a qualitatively new noosphere-space civilization. To this end, the existing education system should be turned into a noosphere-space system at least until the middle of the XXI century, using noosphere-space-oriented pedagogy. In this regard, the relevance of the theoretical understanding of modern knowledge about man has increased immeasurably, as well as the integral and methodological functions of philosophy in establishing mutual understanding and cooperation between various branches of human scientific research.

The current classical model of education has almost exhausted itself, because it does not meet the requirements that modern schools and education face, that are raised by modern society and production, not to mention the upcoming noosphere-space development of mankind in the process of IHT progress deploying. Therefore, we propose a set of philosophical, scientific and pedagogical priorities of educational strategies that will be action plans for the future, namely: 1) the formation of an ideal image of a young person of the future by educating them of cosmic consciousness; 2) the formation of a renewed spirituality: divine (according to M. Berdyaev); with a noosphere type of thinking (according to V. Vernadsky); and at the same time cosmic (according to K. Tsiolkovsky); 3) the formation of an ecological and climatic worldview and a progressive mentality.

Thus, we need to change the paradigm of education, which would contribute to the withdrawal of civilization from global crises, and, accordingly, would protect from omnicide, and would ensure the noosphere-space civilizational development of mankind. So, the creation of an educational strategy at a qualitatively new spiritual level in the context of the development of both IHT progress and global civilizational challenges should become an intellectual basis for modern and future generations.

Educational strategies in the field of forming a young person of the future should be based on the fact that it is the ideal teacher who should become the central figure and its main driving force in the formation of noosphere space-oriented youth: spirituality and morality, worldview and consciousness, wisdom and mentality, which will ensure success in the formation of noosphere-space civilization and the future of mankind.

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