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Methodological Foundations of Noosphere Education: Comprehension of Aggravated Relevance

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Abstract: This article deals with Vernadsky's concept of noosphere in terms of educational and ideological solutions to global problems. In turn, these solutions should help humankind survive and reveal its technological and creative potential by developing and implementing the "cosmic education" paradigm. The article aims to highlight the relevance, universality and centrality of noosphere education and consciousness as the only tool to save humanity from political and human-made disasters through essayistic and philosophical methods. Research methods mostly include philosophical introverted methods, as well as comparison, extrapolation, dialectical and metaphysical forecasting. Besides, the article discusses and draws philosophical, historical and political parallels proving that noosphere consciousness, noosphere humanism and anthropocosmism, together with system-centric paradigms, should become the basis of post-non-classical pedagogy. Finally, emphasis is placed on methodological coordination and concentration on the theory of noosphere, science and education, as well as on the role of the current education system (at a psycho-pedagogical level) in meeting the demands of time, nurturing social consciousness under the current crisis and the changes that have enhanced the dialogue between human and nature.

Keywords: *Noosphere; noosphere education; Vernadsky, technology; human; nature.*

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Introduction

Since the mid-20th century, science and education, together with the media as part of progressive humanity, have been expanding the space of scrutiny in the context of gestalt personality theory. Between the late 19th century and the mid-20th century, this concept was steadily broadening in Eastern Europe, which led to viewing knowledge as something cosmic (Fedorov, 1982; Tsiolkovsky, 2022; Vernadsky, 1945). It actually influenced the current humanitarian scientific and philosophical consciousness. The latter paved the way for the psychopedagogy of cosmism. Nowadays, the mentioned concepts have become extremely relevant due to the overwhelming need to "save humanity" from the chaos that it itself created.

Research relevance. Today shows how unready humanity is for noosphere realities, including the COVID-19 and military conflicts. The mass consciousness of global society and its "educational navigator", i.e., school and pedagogy, also cannot respond to existing challenges promptly and effectively.

Insufficient awareness of nations and governments of pressing global problems, as well as the infoglut of the system, has quickly destroyed calmness and indifference of human consciousness, which remained as such until 2019, despite armed conflicts, local wars, natural disasters and incompetence of politicians. In this geopolitical context, the problem of an international component of education content lies in dialectical proportion to that of a regional component as the main mission of pedagogy today.

World science has not yet managed to take real steps, in both rational and practical dimensions, to counteract *necrosphere* as a mental disorder on the planet. Practical philosophy does not scrutinize the practical implementation of *noosphere humanism* and lacks the framework of *noosphere methodology of science and education*. This is confirmed by the conclusions and statements of reputable non-governmental organizations. A report by von Weizsäcker & Wijkman (2018), titled "Come on! Capitalism, short-termism, population and the destruction of the planet", is consistent in terms of meaning and, simultaneously, inconsistent in terms of probable solutions with Vernadsky's ideas (1945). Vernadsky (1945) defended the triumph of the individual in the biosphere and, above all, the belief in the possibility of its scientific piloting. Instead, von Weizsäcker & Wijkman (2018) advocate the idea of the difference between an "empty world" and a "full world". When the world was "empty", nature predominated over people. Interestingly, this period ended about 70-80 years ago. Since 1945, the number of people on the earth has increased threefold, which makes the

world "full". The planet, however, is not growing, which is one of the main today's problems (von Weizsäcker & Wijkman, 2018). Even before the mid-20th century, the earth had enough territory to make people feel the centre of development around which the universe revolves. It was then that there appeared "acme-anthropocentrism" as the most humane plan for the adoption of human divinity, inspired by the Renaissance toward the distant and "unattainable" future. Subsequently, six centuries quickly passed and it (the future) came. Instead of rejoicing, enlightened humanity can now realize the cost of its progress and the value of knowledge without proper education. Indeed, the chaos of biosphere exceeds its orders, whereas entropy increases.

The article aims to justify total changes in educational and socially conscious paradigms, as well as outline theoretical and methodical contours of noosphere in the current geopolitical and social situation. The **partial** objective of the article is as follows: to find correlations between Vernadsky's (1945) theory and previously autonomous scientific and philosophical theories, which directly or implicitly contain the ideas of cosmism, synergetics and sustainable development.

This research propagates the idea that global society should strive to curb the expansion of an over-human and his/her *cunning mind* on the planet. The "Come On! ..." phrase should be seen as a call to the research action plan that prevents bifurcation. Unless science and education learn how to rectify the existing crisis, non-control filters will be put into operation. Still, the authors of this article prefer the opposite way out of this extremely difficult problem. In particular, all educational improvements, as well as the creation of the planet's noosphere as a global brain, should be global and regional, consistent with the health of biosphere at quantum levels.

Owing to the inability of education to be ahead of human development, there is a sense of global crisis as *the freedom of easy liberation from life (irresponsibility)*. One can observe the demoralization of society, the prevalence of stratification in cognition and consciousness, the management of social institutions by humiliated and needy individuals. Our scholars are used to analyzing this problem closer to the materialistic plane and nominate such aspects by psychological creative potential, which is objectified by transformative intension at the maximum. It gravitates toward human genius as a parascientific phenomenon (Nerubasska & Maksymchuk, 2020; Nerubasska et al., 2020). These institutions, at the expense of "lower resources", can act towards the unity of *"the cunning mind"* for profit. They spread the idea that there is an opportunity for everyone: a pseudo-scientific-social elevator can raise a certain "earthly observer" who will be trusted by

the masses. As a result, this mechanism will make both the obvious and the natural, stolen from biosphere, more legal on a new global scale, and the product more legitimate.

Given the extremely high level of theoretical and philosophical generalization, not related to existing social practices, the article employs rather specific research methods, namely, essayistic introverted methods that rely not only on generalization, forecasting and meta-trends but also on intuitive sources, "an internal metanarrative" of scholars. Using scientific and para-scientific tools, the authors attempt to distance themselves from traditional methods and look at humanity and its path from the outside, as well as position themselves as an adequate third party. At the same time, research methods also include more traditional methods, such as comparison, extrapolation and integration of metatheories to outline a new educational method.

Since methodology is part of the research problem, the ways of establishing correlation and extrapolating theories from the physical picture of the world to the humanities are considered the most effective. Thus, resonant pedagogies, environmental education and educational synergetics are viewed as the closest to the current educational and general methodological areas and even paradigms.

Analyzing Vernadsky's philosophical legacy in West European scientific discourse

Both the philosophy of cosmism and the theory of noosphere were traditionally considered Eastern European philosophical phenomena. However, at the turn of the 19th and 20th centuries, when globalization problems worsened, and there appeared an issue with reforming all forms of public consciousness in the humanitarian field, philosophers, educators and sociologists worldwide began to highlight the philosophical heritage of the distinguished Ukrainian scholar Volodymyr Vernadsky (1945). This paragraph dwells on the most relevant and promising interpretations of Vernadsky's theory (1945) in the international scientific and philosophical discourse. In particular, Bakhtiari Khah (2020) claims that Vernadsky's works contain the main ideas of combating the global crisis. It was Vernadsky (1945) who, already a century ago, laid the foundations of sustainable development as the evolution of human society through the vertical organization of knowledge acquisition. On the one hand, the members of such a society are autonomous universal personalities and, on the other hand, certain clusters of universal thinking and intellect that can model situations in an uncertain world and solve them.

As it is known, Vernadsky (1945) denied a clear division of knowledge, as well as human nature between individual sciences. In this regard, his ideas seem rather promising for the humanities and natural sciences. Khanin (2018) theorizes about the role of the noospheric approach to economic and managerial aspects of knowledge. Analyzing the evolutionary schemes of being proposed by Vernadsky (1945), Khanin (2018) concludes that today's education shifts from material to existential issues and themes. The next step is to replace existential education with noosphere one. At the same time, this is only a partial reflection of Vernadsky's dialectical law (1945). According to this law, everything develops from the material and the discrete to the ideal collective (e.g., geosphere, biosphere, noosphere). Khanin (2018), relying on Vernadsky's theory (1945), offers his models of integrating heterogeneous knowledge and practices, primarily education, science and business economics.

Evaluating Soviet contribution to world science after the collapse of the Soviet Union in 1991, Kauffman (1991) acknowledges Vernadsky (1945) as one of the greatest scholars little known in the West. Only in the 1980s, some Western scholars recognized Vernadsky (1945) as their predecessor. Indeed, Vernadsky (1945) demonstrated two unique phenomena of science: anticipation and advancement of socio-philosophical concepts for almost a century ahead, as well as the universality of epistemological heritage that is relevant for mathematicians, geologists, ecologists and humanities specialists (Kauffman, 1991).

In his article, Bailes (1990) summarizes the so-called Russian nationalism of Vernadsky as one of the peaks of 20th-century philosophy, as well as the scholar's contribution to natural sciences. This is despite the fact that Vernadsky is traditionally considered to be an idealist. In particular, the greatest achievement of Vernadsky is seen in *the creation of a scientific methodology integrating various objects of the world and filling the gaps between natural sciences and the humanities* (Bailes, 1990). Quite noteworthy are his theories of futurologically oriented universal evolution, total integration and supremacy of a new ecological collective thinking over consumption.

Given the well-known isolation of the Western world from Soviet Russia, the issue of interaction between Vernadsky and Western cosmological philosophers remains relevant. Fuchs-Kittowski & Krüger (1997) believe that the theories of Volodymyr Vernadsky (1945) and Teilhard de Chardin (1964) are highly compatible with world events and trends in the field of development, technology and globalization. Besides, the researchers also discuss the possibility of developing and supporting noosphere with the latest information technologies (Fuchs-Kittowski &

Krüger, 1997). Despite the similarity of many ideas of these scholars, Chardin (1964) absolutizes certain causes and goals of development based on teleological principles, while Vernadsky (1945) takes into account the voluntaristic factor. If one carries on Vernadsky's theory, then one should distinguish two factors of holistic development, such as structure – information and society – human freedom (Fuchs-Kittowski & Krüger, 1997, p. 757). The free will of a highly educated person equipped with technologies leads to a new stage of development, at which values, culture and development of true spiritual potential will create powerful human integration and communication without the absolutization and total participation of information technologies.

In the pre-computer era, the well-known American sociologist Sorokin (2006) believed that people are equipped with "devices capable of sending and transmitting information", including the senses, language and the whole human body information system (p. 46). This confirms the importance of irrational, emotional, intuitive and other introverted sources of knowledge about humans. Besides, universal laws for both the physical and humanitarian picture of the world are becoming apparent. LaRouche (2005) attempts to structurize Vernadsky's principles which are homogeneous concerning all existential levels of matter: from geological – to social and universal (philosophical). The organization of being is determined by matter, energy and information. Meanwhile, each subsequent level (geological, biological, metaphysical) is more potential for relatively rapid development, accelerated in time, even though it operates according to equal laws. According to LaRouche (2005), "the Earth's shell has a strictly definite composition and structure, determining and controlling all the phenomena that take place within it, the phenomena of life included; it is morphologically distinct but closely related to the general structure of the planet" (p. 36).

Critics of LaRouche (2005) consider him a scholar who adheres to the metaphysical principle: the world moves towards its original singular state through the development of matter-life-consciousness. It follows that "the Cosmos is transforming into the Garden of Eden". In particular, Douglas (1994) indicates that, following Vernadsky (1945), LaRouche (2005) and others, "all decent scientists must link their scientific work with the fight against the increase of entropy and against the Second Law of Thermodynamics That is the true task for mankind as a whole" (Douglas, 1994, p. 14).

One can find even more subtle links between the noosphere doctrine and physicalist theories. However, it is advisable not to multiply

epistemological entropy. It must be noted only that Vernadsky's ideas are most correlated to imperative, ideocentric and system-centric theories. In this context, pedagogy of place (Callejo-Pérez et al., 2004), evolutionary and resonant pedagogy (Pitt & Samson, 2012), as well as educational synergetics and pedagogical theories based on historical perspective and futurology, as noted by Myers (1960), seem indeed congruent.

The problem of method in noospherology

The problem of method in noosphere education has not been solved yet. However, humanities specialists around the world conclude that humanity can be saved by the implementation of the coevolution theory, in which human occupies a medial place in the hierarchy but is central to the system of systems. Human is a medial but integral and open system with the most attractors among natural organisms. Also, human lives in a constant "cascade" of new conditions that can be used creatively. As noted by Knyazeva & Kurdyumov (1994), these conditions rely on axiological, moral and ontological aspects of consciousness that allow one to prove oneself in the world (p. 112).

If one considers Vernadsky's key notion of noosphere with its basic patterns as a methodological postulate, then one can metaphysically outline and explain the essence of the new educational paradigm in the context of the typical biological and mental ontogenesis of the average person. Developing educational potential during one's life, one, with "one's biosphere" as part of a single and common biosphere, learns to interact with the environment through mastering, appropriating, assimilating and transforming. This environment is not only material goods and technologies important for the consumer consciousness. It is something more global and indefinite. It follows that one interacts with the world of soils, minerals, biodiversity, waters and climate in general (the meso level of cosmism), shaping one's wisdom of life as an educational achievement (an individual mentality or meaning at the end of one's earthly existence. In the context of one's position, concentration and steadfastness, one who has naturally attained wisdom at an advanced age focuses one's brain and captures the images of biosphere and space as "the acquired world".

Education in the interests of humanity continuously creates mental structures, which, based on the idols of Bacon (2012) and the archetypes of Jung (1954; 1991), define this acquired world (the image of the biosphere) as one's freedom. It means that concerning human mentality, education acts as a certain filter that determines what one perceives or does not perceive as really existing in the world and, at the same time, resonates in one's

mentality and over it (one's actions). Thus, the evolution of education in the usual, not noosphere-related, sense implies searching and creating "another modernity". For instance, an expert, on whom education quality (content) depends, perceives education through the mental structures formed in his/her chronotope, completed by self-education in the form of his/her own beliefs. Such a development scheme means that neither the reformers of education nor its consumers can leave their horizon of reality and assign an epistemological status to its phenomena.

On the other hand, one can look ahead of one's feelings and acquired knowledge (acquired mentality) due to the new, noosphere-related philosophy of future education and current education with its scientific core as a primitive reflection of cosmic laws. Besides, one can use new thoughts, generated by the education system, as a synthesis of joint or personal creative efforts and change the course of one's actions by cultivating a conscious transition to a refined socio-environmental trajectory of the future, i.e., personal-differentiated "passionarity" (Gumilyov, 2012). Thus, humans and nature can deal with existing challenges with the help of projective education as a synthesis of the creative energy of thoughts. It implies educational navigation of (under-) developed mentality throughout one's life under the *labori et litteris* (labour and science) principle. However, it requires one to *perceive the present as a projective noosphere.* Actually, any projective discipline "constructs possible units, possible universals or worlds, thus expanding the mental horizon of science and future technologies and forming a new fragment of the noosphere" (Epstein, 2017, p. 170).

Some theories associate Vernadsky's ideas with the possibility of combining pedagogy with the largest dimensions in the world. In particular, **Wentzel** (1993), Vernadsky's contemporary and supporter of a liberal education, defines the mission of pedagogy as follows: it is based on one's awareness of one's affinity with the cosmos. Everyone can start realizing that he is not only the son of his parents, fathers and mothers but also the Son of the Great Creator of the Cosmos and the Great Creator of Humanity at the same time. It is only a matter of time before one starts developing the feeling of such a filial attitude towards the cosmos and humanity. Cosmic education aims to help students realize the commonality of individual life with a cosmic one and consider themselves and the whole cosmos as something inseparable, which develops in a certain direction and that they, regardless of their intention, participate in this or that process of developing cosmic life in one way or another (Wentzel, 1993).

General methodical principles of noosphere pedagogy follow from its subject. The subject of noospherology is the noosphere as the current

state of terrestrial society and its interaction with nature, in which scientific reasoning is the priority. However, noosphere is not second nature of Schelling (2006) or semiosphere of Lotman (2005), which bypassed the first one. It is the biosphere harmonized with the mind, which links everything with a uniform law of the cosmos, i.e., the unity of people. The human landscape of the planet is connected at the level of the microcosm (micro-objects of biota, energy, matter and its elements), the level of accumulation and use of information verbally or digitally and the level of the macrocosm. At the same time, both the microcosm and macrocosm are rather conventional and symbolic concepts, belonging more to the methodology of science than to specific theories. Today, the fundamental theme of research on noosphere is mainly the mechanisms that accelerate the transformation of the biosphere into the noosphere.

The shift towards the noospheric worldview relies on the personal-noospheric approach. Concerning a noospheric personality, it should be viewed as a phenomenon outside the individual and together with him/her. In the humanitarian space, such a shift occurs in the system of real relationships between the intelligent as a creative monad with another intellect and all the intellects of the planet through things-processes that are in the global space of the biosphere. The relationships between them in a concrete-material and procedural way constitute a noosphere-biosphere monad of collectively differentiated labour, which cultivates the socio-biospheric nature of thought. On the agenda is the elaboration of noospheric psychology and pedagogy as a method of shaping noosphere consciousness.

Psychology, together with genetics and sciences of a healthy nervous system, can create a new "psycho-pedagogical tomograph" for rational sorting in terms of forming the psycho-constitution of the collectively differentiated common cause of the planet's regions and their interregional interaction, as well as a certain regional social landscape over geography.

Thus, it is essential to promote "the noosphere project" in the context of the humanities by establishing institutions of collective scientific reasoning that rely on the code of honour of noosphere scholars as the designers of an intelligent biosphere (the leaders of anthropologization).

In the case of using a general scientific approach to building methodological principles of noosphere education, it should be viewed as deductive. Therefore, it is vital to reinventorize alternative approaches to education in this very context. In this article, emphasis is placed on the comparison of deductive didactics by Khutorskoy (2016) and Davydov

(1996) since both theorists aim to shift pedagogy towards cosmism, but, at the same time, employ different ways of changing personality (see Table 1).

Table 1. Comparing didactics by Khutorskoy (2016) and Davydov (1996)

Elements	Khutorskoy's didactic	Davydov's didactic
Concept	Heuristic	Developmental
Goal	Self-fulfilment	Development
Subject-specific area	Values, capabilities, competencies, intellect, feelings, physiology, morality	Theoretical thinking and awareness
Model	Exteriorization – the transition from internal to external actions	Interiorization – the transformation of knowledge and experience gained in the external world into the internal component
Pedagogical standpoint	"Growing". The student is viewed as a seed (family) of an unknown plant with its mission	"Rooting" (Vygotsky's term). The student is viewed as a recipient of culture
Learning activity	A basic study of real objects, rather than existing information about them	The theoretical transition from the abstract to the concrete
Education content	Created by students, as well as accorded with cultural and historical content	Traditional
Learning focus	Competencies: cognitive, creative, organizational, communicative, axiological-ideological	Ability to understand. Performance of mental operations
Forms of the teacher-student interaction	Supervision as an approach. The teacher helps the student see a personal meaning in the problem and solve it	Mentoring as an approach. The teacher facilitates learning in "the zone of an immediate development"
Learning methods	Educational simulation. Heuristic methods and techniques	Learning tasks aimed at discovering a universal way to solve individual problems
Learning outcomes	Internal and external educational products of students	Theoretical thinking; theoretical knowledge acquisition

Educational products	Students create in-demand educational products. Career guidance	Thinking abilities that are in demand in relevant areas. Lack of educational products

Source: systematized by the authors based on relevant sources (Khutorskoy, 2016; Davydov, 1996)

As can be seen from Table 1, Khutorskoy's heuristic learning enables students to construe their own meaning, goals and organization of education, as well as find their development path, created by the psychotype of their self-concept. Students already have "a plan for the future", devoid of mechanistic unambiguity and full of bifurcation points. Such a comparison can serve as the basis for the conceptualization of the new theory of cosmocentric education.

Conclusions

Noospherology is a complex scientific discipline that lies in the interdisciplinary dimension of natural sciences, humanities, social sciences and philosophy. In the 21st century, this discipline is gaining significant momentum through new ways of accumulating and processing information due to the rapid development of the IT sector, education and, consequently, the new tide of scientific awareness. These conditions, external to the actors in the educational process, act as both preparation and floor of the noosphere scientific revolution towards Vernadsky's noosphere.

Thus, noosphere consciousness is the result of this evolution. Being geological by nature, its origins embody the ethnocultural integrity of the population in the biospheric region as part of the mentality. At the same time, proper development of biosphere is seen in its further cephalization. This symbolic but also real brain, which makes one aware of one's mission and helps one behave adequately to nature, acts in the interests of the body of biosphere as its own and is its (earth's) purpose. The cyclometry of human development has established a certain sequence of changes in educational paradigms, which imply the irreversibility of the biological clock.

The ideas of Wentzel (1993) and Vernadsky (1945), as well as of many others, are significantly concurrent with Prigogine's theory of synergetics (1978). This theory was originally formulated to complete the physical picture of the world and now claims the status of the latest scientific paradigm. The authors of this article agree with Kautzleben & Müller (2014) who acknowledge the epoch-making role of Vernadsky's reports during his lifetime. Indeed, his special role lies in the creation of fringe sciences

(biochemistry, geochemistry) which later influenced world processes aimed at erasing interdisciplinary verges. Today, one can observe the syncretism of both fundamental sciences and humanities. It must be noted that humanities are striving for a common goal, which is to develop a single, promising social philosophy not only to save humanity from information chaos but also to bring it to a new spiral of development.

Concerning methodology, noospherology seeks a global and, at the same time, profound (microscopic, nano-) coverage of various theories in the fields of natural, social and human sciences, which interpenetrate each other. Noospherology might be rather "weakly" presented at the levels of secondary and higher education because of "the complex simplicity" and an ineffective methodological arsenal of approaches. It is rarely the theme of psycho-pedagogical research conducted by young scholars, as well as of that on the philosophy of education. Finally, educators traditionally view science as something logical, rather than spherical.

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