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ECOLOGY AS SUBJECT AREA OF ACTIVITIES

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Abstract

The environmental sphere embraces all aspects of social life and exerts influence on social development, being an essential component of social practice. The environmental sphere is a system that includes subareas, which are functionally and structurally interrelated components. As a complex subject area, the environmental sphere includes the following subareas: “man-nature”, “man-technology”, “man-sign system”, “man-man”, and “man-image”. These components are functionally interrelated: a product produced in the course of transformation of a subject belonging to a particular subarea becomes a subject, means of or condition for activity in other subareas. The environmental sphere as an area of activity can be divided into subareas on another basis, i.e. according to the nature of an object-oriented activity. Such an approach conditions the division of the environmental sphere into three subject subareas: cognition, transformation, and communication. Knowledge of objects and phenomena belonging to different subareas of the environmental sphere is a means of transformational activities pertaining to ecology, including the ones aimed at personal and social relations. Having used the classification of professions for the analysis of the ecology sphere as an area of activities, we have come to the conclusion that the environmental sphere is a complex subject area including the following subareas: “man-nature”, “man-technology”, “man-sign system”, “man-man”, and “man-image”. These components are functionally interrelated: a product produced by transformation of a subject belonging to one subarea becomes a subject, means of or condition for activity in other subareas.

Keywords: Environmental sphere, ecology subject area.

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1. Introduction

The modern world is developing in the context of interrelated processes of globalisation shaping the global community. These processes are characterized by the common informational, socio-cultural and technological, and by environmentalisation manifesting itself in sharing ecological knowledge, practices and values and introducing them into various areas of social life (Cherkashin & Titov, 2017; Graham & White, 2016; Patterson, 2015). These processes as a whole make it possible for a special social sphere, that is the sphere of ecology (the ecological sphere of society), to emerge. The ecological sphere is a field of social relations, which is a condition for the existence and development of society, and the totality of statuses and subjective positions (Sörqvist, 2016). Working in various subject areas, including the ecological one, people become socially active, and their cooperation leads to emergence of certain social relations and establishment of statuses, i.e. social positions of individuals (Bolt, 2017; Carmi, 2017; Stojanovic et al., 2016).

The ecological sphere is an area of social practice in which human activities are aimed at understanding and transformation of living systems and their environment, the industries affecting living systems and their environment, and personal and social relations pertaining to nature (Titov, Cherkashin, & Makhareva, 2018). The condition for and result of this social practice and, consequently, the existence and development of society is the process of gaining and accumulating knowledge about the world, which provides the basis for activities in the ecological sphere.

In our opinion, a subject area of activity is a unity of reality fragments (that is, the properties of objects belonging to the material and ideal world) acting as subjects and means of activity, and of the conditions beyond the scope of an activity. Therefore, the ecological sphere should be considered a subject area of activity aimed at natural objects and industrial production and social relations pertaining to nature.

2. Problem Statement

Through working in the ecological sphere, people focus their activities on three groups of interconnected objects: a) living systems and the environment; b) industrial production, living systems and the environment; c) social relations associated with understanding and transformation of nature. It enables us to consider the ecological sphere to be a field of activity integrated with other spheres of social practice, including political, economic, industrial, cultural, legal ones, etc.

Modelling the concept of the ecological sphere as a subject area embracing educational, transformational and communicative activities in the context of the nature of working activity subareas is regarded as the problem of this paper.

3. Research Questions

In order to characterize the ecological sphere as a subject area of activity, it is necessary to investigate the properties of the objects acting as the subjects and means in various types of activities, which are external to the activity as a system of environmental conditions, and the general characteristics

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of the ecological sphere as a subject area of activity aimed at natural objects, as well as at social relations and industrial production pertaining to nature.

4. Purpose of the Study

To carry out an analysis of the ecological sphere as a subject area with regard to the nature of activities aimed at an object (cognition, transformation and communication) and the nature of working activity ("man-nature", "man-technology", "man-sign system", "man-man", and "man-image").

5. Research Methods

In this research paper, a complex of theoretical methods (including the studying and analysis of the literature on the subject, analysis of teaching experience in the sphere of ecological education, and modelling) and empirical methods (including observation, questionnaires, discussion, and analysis of the products resulting from the educational process) was used.

6. Findings

Over the past few decades, the social institution the purpose of which is to meet the social need for ecological security has been being established. This is evidenced by the development of the branches of economics, politics, law and applied sciences aimed at satisfaction of ecological needs. In fact, it is reasonable to postulate the emergence of an established area of social relations, that is the ecological one, within the framework of which the social need for ecological security and wellbeing is satisfied.

The activities in the political, economic and other spheres of social practice carried out with regard to the needs met within the ecological sphere can be called econsistent. A resulting product of an activity is its subject that is converted or transformed in the course of this activity. The subject and the product are the two structural activity elements interrelated through transformation (Gabai, 2010).

Operating in the "man-nature" subarea, people learn about, maintain and transform the properties of animate and inanimate natural objects, such as animals, plants, mushrooms, microorganisms, the atmosphere, the hydrosphere, soil, and the lithosphere. The central place in the group of the subjects of the "man-nature" subarea belongs to material, energetic and informational relations between animate and inanimate natural objects. These subjects constitute the sphere of scientific, educational and working activity.

Professional scientists (biologists, ecologists, chemists, physicists, geographers, etc.) study the properties of natural objects and define the norms of a tolerable anthropogenic impact and lay the theoretical and methodological foundation for environmental management and conservation. Schoolchildren and students use the knowledge accumulated by scientists and learn about the processes associated with nature in the course of studying.

Working activities within the "man-nature" subarea aim at transformation of the properties of animate and inanimate natural objects, which ensures the physiological and social needs of people are met; at transforming the properties of animate and inanimate natural objects altered by the man in order to bring them back to their original state; and at preserving the genetic heritage and landscape diversity of

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the wild. The products obtained through transformation of objects belonging to the "man-nature" subarea in the course of scientific, educational and working activities are the means of and condition for activities in other subareas.

The subject of activities in the "man-technology" subarea is the characteristics of industrial, technological and agrotechnical systems (including equipment, industrial machines and installations, transport and communication vehicles) affecting living systems and the habitat, as well as the knowledge of these characteristics.

Using the knowledge accumulated by scientists specializing in the "man-nature" and "man-sign system" subareas, scientists focusing on engineering sciences can reveal, research and transform the characteristics of technological systems and industrial technologies that are used for changing the properties of natural objects so as to turn them into material benefits and compensate for the consequences of such transformations.

Activities in the "man-technology" subarea imply industrial use of technological systems and industrial technologies in accordance with ecologically reasonable standards. The same is true of technologies related to agro-industry. The knowledge of the "man-technology" subject subarea accumulated by scientists becomes the subject of educational activities of schoolchildren and students, while products of professional activities (such as scientific and industrial equipment, transport and communication, electronics, etc.) become a means of activities in other subareas.

The "man-sign system" subject subarea includes the properties of natural and constructed languages, charts, formulae, signs, drawings, and tables, which are used as sign models of animate and inanimate natural objects and of the interaction between these objects in natural and anthropogenically modified environments, as well as the properties of technological systems and industrial technologies affecting natural objects, and social relations pertaining to nature.

Sign models are a means of activities related to transformations of all kinds (including the scientific, working and educational ones) aimed at the subjects of the "man-nature", "man-technology" and "man-man" subareas, and use of these models as a means of communication is a necessary condition for activities in the environmental sphere.

Activities in the "man-man" subject subarea aim at understanding and transformation of social relations associated with nature management, which determine social (in relation to society) and ecological (in relation to nature) behaviour. This "man-man" subarea includes social relations pertaining to nature that act as a necessary condition for scientific, working and educational activities in all subareas of ecology. Human behavior in various ecological situations can be considered the subject of this subarea.

The subjects of the "man-image" subject subarea are the properties of animate and inanimate natural objects, aspects of interaction between the man and nature, and social relations pertaining to nature. They are identified by artists, poets, writers, producers, architects, sculptors, designers, etc. in accordance with a subjective position and reflected with the help of special artistic devices. In fact, the "man-image" subarea consists of the subjects belonging to the "man-nature", "man-technology", "man-sign system" and "man-man" subareas, with products of activity being images of objects that are transformed in a special way and reflected in the works of literature, painting, graphic art, sculpture, architecture, cinema, and theatre. A special feature of this aspect of the environmental sphere as a subject

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area is its relative independence from other subject areas. Art workers are not as strictly constrained by the properties of the objects portrayed by them as the subjects of other professions (such as scientists, engineers, teachers, and public figures). Besides, the results of artistic interpretation of objects belonging to the "man-nature", "man-technology" and "man-sign system" subareas are not a means of or condition for understanding and transforming the objects of these subareas. The only exception is the "man-man" subarea, in which understanding and transformation of objects is carried out via artworks and images portrayed in them.

There is also another way the environmental sphere as an area of activities can be divided into subareas, that is according to the nature of an activity aimed at the activity object. Such an approach conditions the division of the ecological sphere into three subject subareas: cognition, transformation and communication.

The subarea of cognition includes the entire scope of knowledge of the interaction between and interdependence of living systems and the environment; of the effects industries and consumption have on living systems and the environment; and of social relations pertaining to nature. These are the subjects of cognitive activities the content of which is objectively and subjectively new knowledge of the interaction between and interdependence of living systems and the environment; of the effects industries and consumption have on living systems and the environment; and of personal and social relations pertaining to nature. The subject of research as a kind of cognitive activity is the situations implying a problem, i.e. "knowledge of lack of knowledge". Research is aimed at analysis of a problem situation, revealing the content of lack of knowledge, and turning it into knowledge.

Therefore, the subarea in which objectively new knowledge having ecological content is acquired can be classified depending on the content of a problem within the environmental sphere, the source of which can be, for example, the anthropogenic impact on aquatic ecosystems and their inhabitants, soil and its inhabitants, etc. Depending on the purpose of cognitive activities and the novelty of information gained and retained, the subarea of cognition can be divided into scientific and educational aspects.

The way sciences interact is determined by the subject, that is the properties of certain phenomena of the material world on which a particular science focus.

Scientists use the theoretical and methodological groundwork resulting from studies in biology and geography to lay the factful (theoretical) foundation for ecology, i.e. its conceptual and methodological framework (McDonnell, 2013).

To build models reflecting the state of and changes in abiotic and anthropogenic components of the environment in natural and urbanized territories, ecologists use the facts accumulated by climatologists and meteorologists, geochemists and demographers, as well as soil and landscape scientists. While researching the biotic aspect, ecologists use achievements of biogeography, taxonomy, biochemistry, physiology, morphology, ethology, hydrobiology, and phenology.

Facts and theoretical and applied generalizations accumulated in the environmental sphere are used for solving applied problems in urban planning, forestry, agriculture, economic geography, industrial security, urban studies, medical ecology, epidemiology, and hygiene studies (Sukopp, 2002).

The properties of living systems and the environment being transformed in the course of activities, the impact industries and consumption have on living systems and the environment, and social relations

pertaining to nature form the subarea of transformation, which characterizes the environmental sphere as a subject area of transformational activities. The subarea of transformation of ecological objects, situations and relations pertaining to nature (both personal and social) is the most extensive part of the environmental sphere as an area of activities.

The third subarea of the environmental sphere includes the subjects defining it as an area of activities aimed at spreading and transmission of relevant ecological information about the condition of living systems and the environment and about the ways they are affected by industrial production and consumption, as well as about social relations in the environmental sphere. This subarea of communication is the one of spreading, transmitting and organizing socially relevant ecological information. In this context, ecological education and awareness can be considered a special form of ecological communication. The subject of the subarea of communication is ecological information intended for both individual social groups and the society as a whole.

7. Conclusion

Thus, the environmental sphere as a subject area of activities aimed at understanding and transformation of the properties of living systems and the environment, of the anthropogenic impact, and of personal and social relations pertaining to understanding and transformation of nature, is a system including functionally and structurally interconnected components, that is, subareas. Knowledge of objects comprising different subareas is a means of transformational activities in the environmental sphere including the ones aimed at personal and social relations. Ecological communication ensures information exchange, which conditions cognitive and transformational activities in the environmental sphere. The environmental sphere is a subject area of human activity, and by participating in it, a person having a subjective position simultaneously and interdependently acts as an ecological subject (the subject of an ecological process of development) and as a social subject (the subject of one's own social formation, as well as of the development of social relations determining interaction with nature) (Panov, 2006).

Having used the classification of professions for the analysis of the ecology sphere as an area of activities, we have come to the conclusion that the environmental sphere is a complex subject area including the following subareas: "man-nature", "man-technology", "man-sign system", "man-man", and "man-image" (Klimov,1999). These components are functionally interrelated: a product produced in the course of transformation of a subject belonging to a particular subarea becomes a subject, means of or condition for activity in other subareas.

A resulting product of an activity is its subject that is converted or transformed in the course of this activity. The subject and the product are the two structural activity elements interrelated through transformation (Gabai, 2010).

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