Tatiana SAYENKO
National Aviation University, Ukraine

Oksana NAGORNIUK, Lilija NEDOBIJCHUK
National University of Life and Environmental Sciences of Ukraine, Ukraine

Pedagogical problems of ecologocal (environmental) training in technical universities

Today the education must meet the requirements of environmental imperative, relevance of problems of implementation of sustainable development of society and natural ecosystems. In Ukraine, the whole state system of environmental management is an acute need for qualified professionals, government officials, aware with the requirements of environmental and economic policy, terms implementation of the concept of sustainable development. The problem of environmental education now has gone beyond national boundaries and gained international importance and nature. The experience of Western countries in the implementation of ecologization of education precedes the national measure on 25–30 years, therefore together with the transition to the principles of the Bologna process in higher education, the Ukrainian education system would accept and positive elements in ecologization of disciplines, areas training experts, lecturers, teachers and the general public in these countries [Саєнко 2006a: 24].

The path to balanced development goes through a gradual, consistent, universal ecologization of society and economy that can be successfully carried out by professionally trained and environmentally conscious professionals with high environmental culture and noosphere thinking: officials, leaders of all branches of government, teachers of educational institutions. Obligatory condition of practical recognition of the ecological imperative and the integration into the world and European community is the implementation of national environmental legal regulations that should be consistent with international environmental standards. The difference between environmental education to education for sustainable development (ESD) see in understanding of deepening not only the current global environmental crisis, but crisis of management. Therefore, the outputs from the current situation experts predict a change in the relationship of artificial systems created by man and the Nature; in the reforms of management systems and the development of theories of building a harmonious society; in the organization of effective environmental monitoring and auditing in all spheres of human activity; in improving of environmental policy at all levels.

The subject of education for balanced development should be the conditions and methods of stabilizing socio-natural systems, their planning and sustainable management [Саєнко 2006b: 360]. **But the foundation for the ESD is environmental education, which provides an understanding of the processes occurring in natural and man-made systems, and develops and helps to implement the effective environmental policy, environmental consciousness and culture.** Environmentally formed and graceful psychology will allow making more ecological the economic activity, reasonably decide inextricably linked social and environmental problems.

Despite the intensification of work in the formation of professional and environmental training of university students question of professional competence of future specialists of technical specialties and psycho-pedagogical support remains little researched. Reorientation of modern psycho-of pedagogical science on personality, its development, revival of humanistic and ecological traditions is an important task of today's educational system. Pedagogical opinion emphasizes that professional competence is modified by changes in psycho-pedagogical competence and significant aspect of professional competence in general is its psychological and pedagogical competence.

Therefore, modeling and characterization of the structure of ecological competence of university students is important to determine the ratio of two components – mental and pedagogical. In work we proceeded from the fact that the mental component can be represented by components: mental properties, mental states, mental processes, and pedagogical – conscious mechanisms of their development, manifestations in activity. The combination of these two components performed on the basis of consciousness and self-consciousness, characterized by reflection of personality – understanding by the specialists of their professional activities, social relations and oneself.

Thus, psychological and pedagogical analysis of our model was implemented in two approaches: on the one hand – as a system of ecological professional knowledge, and on the other – as a system of actions, processes and mechanisms to ensure that their manifestation in the form of environmental competence. Observations were made both by students and by lecturers. Earlier was noted that the element of synthesized model of environmental training of future specialists is – „**the teacher** who should possess the theory of the subject and can not be limited by the role of information or controlling means transmitter; he must be the organizer, cognitive competence, value-motivational, action-responsible, regulatory standard and ethical and cultural activities in order to create ecological thinking, consciousness, ethics and culture of the future specialist". That is, the knowledge of the teacher is also included in the developed model and characterized by: **complexity, consistency, effectiveness**.

In the system of teacher professional knowledge in universities can be identified five main blocks – psychological, educational, vocational guidance, specific presentive and scientific and research. Training in Psychology – is, above all, the idea of a specific psychic reality, „a heightened sense of spirituality" of other people, not just verbal and conceptual knowledge. Psychological knowledge provide control of own inner world, self-improvement on a scientific basis, which is necessary for each specialist as teacher and student. The effectiveness of professional functions largely depends on personal psychological readiness, an integral part of which is psychological knowledge.

Competence in a broad sense can be seen as creatively modified attribute of personality level, a system of such acquired knowledge, skills and abilities by which a specialist flexibly using them can solves problems and challenges that arise in the process of life. **Thus, the model of ecological competence is appropriate for both students and teachers the extent mastery of psychological and pedagogical knowledge and methods of their use: from conceptual apparatus to creatively productive work in different situations.**

Psychological knowledge needed for teachers and students to understand other people, poverty the standards, stereotypes, barriers that introduced by socium; for self-knowledge, self-government, overcoming the consumer attitude to the Nature, people, and myself personally; for the integration of psychological knowledge with other branches, including environment; to understand the interaction of mental phenomena with social, economic, and political factors. That is, through psychological and pedagogical aspect occurs the integration of subject and object of the model, the implementation of humanistic personal relations, and confrontation of negative phenomena in professional activity, etc.

Pedagogical knowledge perform three important functions: ontological, indicative, evaluative, where the last reveals valuable relationships of society, importance of knowledge, actions, events, a system of ideals on which it is based, particularly the period of transition to the principles of sustainable development. Thus, feature of professional pedagogical knowledge is their multilevel: methodological, theoretical, methodological, and technological. Practice shows that scientific activity significantly increases the interest in learning, broadens the mind, the ability to analyze and understand the achievements of modern science. The talk about knowledge as its kinds, levels, types, and blocks may go at the time of manifestation – solving problems of professional activity.

Knowledge is the basis for the successful formation of the following action-role components of professional competence – skills and habits. They are the result of training and self practical activity. Exercising the analysis of the ratio of activity and the psyche the researchers note that every activity has internal and external aspects that are linked inseparably. Any external action mediated by processes that occur within the subject, and internal processes necessarily occur

outside. **The task of psychology consists in the study of external activity through the disclosure of internal aspect and real understanding of the role of mental in activity.**

It may be noted that competence is competence rather than a set of knowledge, skills, abilities, etc., only in activity in the context of rules, functions that are regulatory activity or professional culture. Nowadays, this kind of activity can only be ecological activity, not only normalized, as the impact on the environment, but also creative and protective, aimed at reducing of anthropogenic pressure on the environment. But psychological andpedagogical competence is responsible for the manifestation of professional competence, advocates forming, systematizes and shows mechanism of professional competence, moreover, practical activity of the individual causes generated consciousness and different mental processes.

Taking into account critical state of the environment implies that professional competence without morality, responsibility, and environmental culture is not enough. Specialists may have high professional knowledge and quite actively conduct destructive activity in Nature, which reached its climax in the twentieth century. **Thus, the knowledge, skills, beliefs even not enough in order to man took ecological position and become responsible for their actions. It is needed a great spiritual potential which will direct the acquired professional knowledge in environmentally safe mainstream of practical daily work.**

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Abstract

The ways of modernization of ecological or environmental education in high technical school during the competency paradigm and in final phase of the Decade of Education for Sustainable Development (2011–2014) were discussed.

Key words: ecological (environmental) education, psychological and pedagogical technology, education for sustainable development, ecological (environmental) education in technical universities.