

## Environmental component in the modern specialists training

Un componente ambiental en la formación de especialistas modernos

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### ABSTRACT

Environmental competence is recognized today as the most important professional and personal qualities of the graduate, the necessary basis for ensuring the quality of life of mankind, the development of production at preservation of harmony with nature. Issues of environmental training of the population, including students, are considered in the aspect of various theoretical approaches to human ecology and the formation of their ecological culture. The key ones are: the ideas of the historical relationship of society with nature; various aspects of the values and relations between the environment and society. In pedagogy the problem of ecological education and upbringing is studied from different positions: from general theoretical; from axiological; from methodical. The social-value and professional essence of ecological competence of specialists-ecologists caused by historical and evolutionary ideas of the nature and a place of the person in it; laws of relationship of the nature and society; the purposes of use of natural resources by production; existing and perspective ways of their preservation for future generations is revealed. Integrating various approaches, professionally directed educational work with college students is considered by us as a complex system of joint actions of managers, teachers, students, parents, representatives of public organizations, production, etc., aimed at creating conditions for effective personal and professional development of each student. The model of professionally oriented educational work with students—future ecologists includes the means of organizing a phased, consistent and comprehensive inclusion of students in various types, forms and methods of social and professional activities aimed at mastering environmental, research and propagandistic abilities and skills, the formation of the subjective position of the specialist and his social and environmental activity.

**Keywords:** environmental competence, environmental training, environmental culture, specialists-ecologists.

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## RESUMEN

La competencia ambiental se reconoce hoy en día como las cualidades profesionales y personales más importantes del graduado, la base necesaria para garantizar la calidad de vida de la humanidad, el desarrollo de la producción para preservar la armonía con la naturaleza. Las cuestiones de la formación ambiental de la población, incluidos los estudiantes, se consideran en el aspecto de varios enfoques teóricos de la ecología humana y la formación de su cultura ecológica. Las claves son: las ideas de la relación histórica de la sociedad con la naturaleza; diversos aspectos de los valores y las relaciones entre el medio ambiente y la sociedad. En pedagogía, el problema de la educación ecológica y la educación se estudia desde diferentes posiciones: desde la teoría general; de axiológico; de metódico. El valor social y la esencia profesional de la competencia ecológica de especialistas ecologistas causada por ideas históricas y evolutivas de la naturaleza y el lugar de la persona en ella; leyes de relación de la naturaleza y sociedad; los propósitos del uso de los recursos naturales por producción; Se revelan las formas existentes y en perspectiva de su preservación para las generaciones futuras. La integración de varios enfoques, el trabajo educativo dirigido profesionalmente con estudiantes universitarios es considerado por nosotros como un sistema complejo de acciones conjuntas de gerentes, docentes, estudiantes, padres, representantes de organizaciones públicas, producción, etc., con el objetivo de crear las condiciones para un personal y profesional efectivo. desarrollo de cada alumno. El modelo de trabajo educativo orientado profesionalmente con estudiantes-futuros ecólogos incluye los medios para organizar una inclusión gradual, consistente e integral de los estudiantes en varios tipos, formas y métodos de actividades sociales y profesionales dirigidas a dominar las habilidades y habilidades ambientales, de investigación y propagandísticas, La formación de la posición subjetiva del especialista y su actividad social y ambiental.

**Palabras clave:** competencia ambiental, capacitación ambiental, cultura ambiental, especialistas-ecologistas

## RESUMO

A competência ambiental é reconhecida hoje como as qualidades profissionais e pessoais mais importantes da graduação, a base necessária para garantir a qualidade de vida da humanidade, o desenvolvimento da produção e a preservação da harmonia com a natureza. Questões de treinamento ambiental da população, incluindo estudantes, são consideradas no aspecto de várias abordagens teóricas da ecologia humana e na formação de sua cultura ecológica. Os principais são: as idéias da relação histórica da sociedade com a natureza; vários aspectos dos valores e relações entre meio ambiente e sociedade. Na pedagogia, o problema da educação e educação ecológicas é estudado a partir de diferentes posições: do teórico geral; de axiológico; de metódico. O valor social e a essência profissional da competência ecológica dos especialistas-ecologistas causados por idéias históricas e evolutivas da natureza e um lugar da pessoa nela; leis de relacionamento da natureza e da sociedade; os objetivos do uso dos recursos naturais pela produção; são reveladas as formas existentes e em perspectiva de sua preservação para as gerações futuras. Integrando várias abordagens, o trabalho educacional direcionado profissionalmente com estudantes universitários é considerado por nós como um sistema complexo de ações conjuntas de gerentes, professores, alunos, pais, representantes de organizações públicas, produção, etc., com o objetivo de criar condições para pessoal e profissional eficazes. desenvolvimento de cada aluno. O modelo de trabalho educacional profissionalmente orientado com estudantes - futuros ecologistas inclui os meios de organizar uma inclusão faseada, consistente e abrangente de estudantes em vários tipos, formas e métodos de atividades sociais e profissionais destinadas a dominar habilidades e habilidades ambientais, de pesquisa e propagandísticas, a formação da posição subjetiva do especialista e sua atividade socioambiental.

**Palavras-chave:** competência ambiental, treinamento ambiental, cultura ambiental, especialistas-ecologistas

**Introduction.** The modern philosophy of professional education, justifying the new goals, objectives and paradigms of specialists training, emphasizes the increasing role of education, focusing on the dominant goal – the formation of a citizen, a person capable of fully living and working in a democratic society and being useful to this society. Citizenship, hard work, respect for human rights and freedoms, love for the environment, homeland, family, qualities that the Federal Law “On education in the Russian Federation” defines as educational priorities, they reflect both human and national values of Russia. Among them, an important place is occupied by environmental values that determine the economy, education and culture, as evidenced by the fact that the XXI century is called the century of the environment. Environmental competence is recognized today as the most important professional and personal qualities of the graduate, the necessary basis for ensuring the quality of life of mankind, the development of production at preservation of harmony with nature. Accordingly, the educational work carried out in educational institutions of vocational education mainly in extracurricular time, should fully contribute to its formation. This task is particularly relevant for secondary special educational institutions (SSEI), colleges that train specialists-ecologists (Abdulatipova & Tsakhaeva, 2017; Abuzjarova, 2018; Badakhova, 2017; Borovikova, 2017; Borisova & Novoseltseva, 2016; Borisova et al, 2018; Gasanova et al, 2017; Gadzaov & Dzerzhinskaya, 2018; Zagoruyko, 2018; Bolotin et al, 2017; Gritsay, 2018; Ilkevich & Medvedkova, 2017)

As an integrative quality of the graduate, environmental competence demonstrates the level of formation of his knowledge, abilities and skills in the field of environmental safety of production, as well as a special socio-active attitude to environmental problems. However, the analysis of mass practice shows that colleges, focusing on the knowledge paradigm of education, carry out mainly theoretical training in the educational process, which is a prerequisite for the generation of lack of initiative and immaturity of the student as a subject of professional environmental activities. The formation of environmental competence as a personal characteristic of future ecologists has not become a priority of educational work of SSEI yet, despite their considerable potential for this. In addition, there is insufficient operational response of pedagogical science to the needs of practice in scientific and methodological support of educational activities of the college, which should be distinct and professionally oriented (Kuznetsov et al, 2018; Sergeeva & Trubakova, 2017; Zhivoglyadova, 2018; Dermikanova, 2018; Tsaahaeva et al, 2017; Gadzaov & Dzerzhinskaya, 2018; Yazovskikh, 2018; Narkevich, 2018).

Therefore, it is possible to recognize the actual study of the pedagogical means and conditions of professionally oriented educational work of the college with students – future ecologists, the identification and implementation of which is related to the understanding of productive approaches and ideas, accumulated in the domestic and foreign theory and practice of environmental education and upbringing.

### Research methodology.

Issues of environmental training of the population, including students, are considered in the aspect of various theoretical approaches to human ecology and the formation of its ecological culture. The key ones are: the ideas of the historical relationship of society with nature; various aspects of the values and relations between the environment and society. In pedagogy the problem of environmental education and upbringing is studied from different positions: from general theoretical; from axiological; from methodical. A significant number of works covering methodological aspects of formation of ecological culture of children and youth have appeared. However, the analysis of dissertations of environmental problems, showed that about 2/3 of them are made on the material of schools and pedagogical universities, which is natural, because they are designed to ensure the formation of responsible attitude of younger generations to the environment. Works devoted to the formation of environmental competence of students of SSEI, including in the process of educational work, is clearly not enough. The problem of formation of environmental competence of students, future ecologists, remains practically undeveloped. To some extent this is due to the fact that this specialty was introduced in the system of secondary vocational education (SVE) relatively recently.

The formation of environmental competence is not automatic. This process is carried out under the influence of many factors: objective (globalization, social order of society, innovative pedagogical technologies, etc.), objective and subjective (regional features of education and future professional activities) and subjective (personal characteristics, needs and interests of students). Among the important objective and subjective factors, researchers and practitioners include professionally oriented educational work, which is carried out in the SSEI outside the curricula and programs for the purpose of more complete and in-depth development of professional knowledge and technical creativity (Pozharskaya & Deberdeeva, 2017; Golub et al, 2017; Aminova & Tsakhaeva, 2018; Enygin et al, 2017; Kryazheva & Vinogradskaya, 2017; Gadzhieva, 2018; Narkevich & Narkevich, 2018; Allalyev, 2018; Vorontsova et al, 2018).

The analysis of psycho-pedagogical and special literature, practice of SVE confirmed the relevance and feasibility of theoretical and experimental research of the problem of professionally directed educational work of future specialists-ecologists in college and revealed **contradictions**:

- between the requirements of the Federal State Educational Standard of Secondary Vocational Education to environmental training of graduates and the low level of formation of their intellectual, value and practical experience of environmental activities, which is acquired mainly in extracurricular time;
- between the need for targeted professionally directed educational work with students – future ecologists, and its fragmentation in secondary special educational institutions;
- between the complexity of the functions and the content of professionally directed educational work with students – future ecologists and unpreparedness of management and teaching staff of the college to implement this type of pedagogical activity;
- between the need of college staff in scientifically based recommendations to improve the quality of training of future ecologists and the lack of scientific and methodological development in the pedagogical theory and practice of professionally directed educational work, ensuring the formation of environmental competence of graduates.

The problem facing the pedagogical theory in connection with the presence of these contradictions is to identify the structure, content and pedagogical conditions of the organization of professionally directed educational work

in the college, ensuring the optimal quality of training of future ecologists.

Scientific and practical interest in the problem of professionally directed educational work with students – future ecologists is determined by: the global need to improve the culture of nature management, forms of human communication with nature and the development of human ecology as a science. These and some other circumstances determine the need for targeted broad educational impact in order to form the environmental competence of environmental specialists, whose training is carried out in the system of SVE. Having studied foreign and domestic scientific and theoretical studies on the problem of competence approach, we consider competence as an actual manifestation of competence in the activity. At the same time, we take into account the fact that the main components of the system of scientific knowledge, defined as ecology, are man and his environment. In this regard, in our study ecological competence as a pedagogical category is studied through the prism of dyads: man – environment, man – personality, man – profession.

### **Research results.**

In the dyad “man – environment” they are considered: socio-production sphere, providing a variety of human needs; the information field penetrating into all spheres of the environment; the spiritual sphere, which determines the level of culture, of human intelligence; natural area, including a changed man category of natural environment.

In the dyad “man – personality” they are highlighted: the orientation of the individual, the system of their relations to the world (motives, needs, feelings, emotions); the possibility of the individual, the psychological prerequisites for the success of their activities in a particular area: will, abilities, interests; style of behavior of the individual, manifested in responsibility, cooperation and dialogue.

In the dyad “man – profession” a profession is considered from two perspectives: the job description of the character and personal characteristics of the worker, possessing profession.

As a result of the study, the socio-value and professional nature of environmental competence of specialists-ecologists was revealed, due to historical and evolutionary ideas about the nature and place of man in it; the laws of the relationship between nature and society; the objectives of the use of natural resources by production; existing and promising ways of their preservation for future generations.

Based on the regulations of the FSES SVE, as well as the conclusions of J. Raven, who gave a detailed interpretation of competence and revealed the conditions of its formation on the basis of the concepts of “motivation – goal setting – behavior”, we suggested that environmental competence is an individual indicator of the quality of the functioning of a specialist in a professional ecocultural system and its structure includes cognitive, motivational-value and activity-practical components and represents the unity of environmental consciousness, environmental values and experience of environmentally oriented socio-professional activities. This definition required a more detailed consideration of the system-forming concepts used in it: environmental consciousness, environmental values, and environmental behavior.

As a result of the study of R. Wilson, S.D. Deryabo, N.S. Dezhnikov, I.M. Ibrahimov, I.A. Pogonysheva, V.A. Yasvin and others we came to the conclusion that the formation of ecological consciousness is influenced by environmental knowledge and beliefs, formed mainly in the classes. Environmental values include the natural needs, motives and installations of the person; environmental feelings, skills, and habits; a steady will; important goals of environmental activities. Environmental behavior consists of individual actions, human attitude to actions, their responsibility, self-control, ability to foresee the immediate and long-term consequences of their actions in the natural environment, critical attitude to themselves and others. Both scientists and practitioners note that environmental values and behavior are formed over the years and not so much in the classes as in extracurricular activities and purposeful active environmental activities. Based on this, we conclude that the educational work with college students as a factor in ensuring the quality of training of future ecologists has the high importance.

### **Discussion.**

Modeling of professionally directed educational work with students – future ecologists required a more detailed consideration of the essence of this concept. The theoretical analysis showed that in the studies of different authors there are a variety of approaches to its definition. Most often we are talking about extracurricular work in school, considered as a means of harmonious development of students; organization of their free time, improving the quality of knowledge. In general, agreeing with these approaches, we considered it appropriate to identify the specifics of educational work in the SSEI as an important aspect of professional training.

With regard to the system of SVE, the term “extracurricular educational work” is usually used, which is carried out outside the curriculum and programs, and is a different kind of activities organized for the contingent of the

educational institution for the purpose of more complete and in-depth knowledge development and development of technical creativity. In our study, we use the term “educational work”, because we believe that it reflects to a greater extent the essence of educational work in college, as extracurricular work can be educational in nature, regulated by curricula and programs (for example, independent educational and research work).

In the context of our study, we can distinguish two main approaches to the consideration of the goals of educational work. The first indicates its importance for the expansion and deepening of students’ knowledge about the specifics of the future profession and the formation of the necessary skills. The content and forms of such work are determined by the interests and demands of students, are flexible, mobile and dynamic and allow meeting the needs of each student to the extent that it cannot be done in educational activities.

The second approach focuses on the social orientation of educational work, i.e. they consider it as a means of socialization of the student.

Integrating various approaches, professionally directed educational work with college students is considered by us as a complex system of joint actions of managers, teachers, students, parents, representatives of public organizations, production, etc., aimed at creating conditions for effective personal and professional development of each student.

The system of educational work (EW) is multicomponent. It includes the activities of students in composition: the study group, SSEI, public associations, clubs, hobby groups, studios, professional associations, etc. in addition, it includes individual creative, research and practical activities, leisure activities.

As it was shown by the analysis of pedagogical practice, the specificity of EW in the SSEI is that each of its components is designed in isolation, there is an abundance of different provisions, plans, programs, which are often poorly coordinated with each other, overloaded. The study and analysis of samples of local normative-organizational educational documentation of colleges allowed drawing a conclusion about their lack of professional orientation, the dominance of entertainment activities.

The study identified some features of EW in secondary special educational institutions: flexibility, voluntary participation of students in extracurricular activities, a variety of forms of organization. Its most important feature is the role of a “buffer” between the normative and regulated educational activities of the student and himself as a person. Professionally directed EW, supplementing educational, deepens theoretical and practical training, and provides freedom for development of individuality by means of constant reflection of results of self-development in the context of the formed ideals and values. In our case, such ideals and values are environmental.

In the development of the theoretical model of EW special attention was paid to the professional and environmental orientation of educational work:

- the purpose and content of EW are determined by the goals and objectives of professional training of specialists-ecologists;
- the dominant area of extracurricular activities of students are personal or group interests (including professional), which contributes to the creation of situations of success, psychological comfort and motivation of active environmental activities;
- EW is organized mainly outside the college, which allows expanding the area of social and professional interaction, providing the opportunity to form environmental experience and behavior of students;
- forms and methods of EW provide students with the opportunity to participate in the performance of real professional functions, to master environmental competence, starting with the first year of study;
- EW management involves the creation of a college system of co-management, allowing developing professionally significant personal qualities of an specialist-ecologist;
- the relationships between the participants of professionally oriented EW, based on the subject-subject and reflexive basis, contribute to the formation of environmental consciousness and values among students-ecologists, rethinking and transformation of the experience, effective attitude to professional and environmental behavior.

**Conclusion.**

During the study it was found that professionally oriented educational work with college students – future ecologists is: a) dynamic, deployed in time process; b) purposeful constantly complicating socio-professional environmentally oriented extracurricular activities, taking a particular content depending on the course of study; c) the process and result of the deepening and development of students environmental knowledge, abilities and skills (cognitive component of EC), awareness of environmental values and attitudes (evaluative-volitional component of EC), the accumulation of experience in environmentally oriented activities (activity and practical component of EC) and the ratio of these components with the requirements to the specialist-ecologist imposed by the FSES SVE and the employer.

The model of professionally oriented educational work with students – future ecologists includes the means of organizing a phased, consistent and comprehensive inclusion of students in various types, forms and methods of social and professional activities aimed at mastering environmental, research and propagandistic skills, the formation of the subjective position of the specialist and his social and environmental activity.

Professionally oriented EW as a holistic, system-organized activity of managers and teachers of the college is based on the following principles: taking into account the individual nature of the specialist-ecologist, acting in accordance with the environmental values of society and their personal qualities; focus on the characteristics and values of the student; optimal use of eco-cultural opportunities of the educational process and social partners, taking into account the current state and prospects of personal and professional development of future specialists-ecologists.

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