Social aspects of environmental problems

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Abstract. The social aspects of environmental problems are no less important for preserving the quality parameters of the environment than numerous energy and technical aspects. In the context of increasing environmental problems and difficulties in the relationship between man and nature, it seems extremely important to appeal to the consciousness and thinking of man and humanity. An effective means of influencing a person’s system of beliefs and values is education. Therefore, the article’s appeal to pedagogical potential as one of the significant means of solving environmental problems seems quite relevant. Education system prepares specialists capable of solving environmental problems associated with industrial production and energy-saving technologies.

1 Introduction

The National Strategy of Security the Russian Federation defines the safe sustainable development of the country as a leading national interest, which provides the development of human potential, improving the quality of life, the development of a secure information space, the sustainable development of the economy, which is closely related to protection of environment, conservation of natural resources and rational use of natural resources, with the strengthening of traditional Russian spiritual and moral values (NS strategy).

Therefore, the formation of an ecological culture of the individual and society as a whole seems to be an urgent and significant task.

The above-mentioned national interests should also determine the content of educational work with young people at all levels of the education system. An important direction of the educational process should become the environmental education.

The realization of the tasks of environmental education mainly depends on the personality of the teacher, which recognized by most researchers. There are different approaches to understanding the essence of environmental education and determination its content on different levels of the education system.

Most often, specialists distinguish environmental education for children of preschool and school age from environmental education as a field of professional training [1].

In any case, to solve the problems of environmental education should professional teachers with a high level of culture, professional psychological and pedagogical competencies, analytical and synthetic thinking, and a high level of environmental culture.

Today problems of environmental education in the system of additional education, theoretical and practical aspects of environmental and aesthetic training of teachers

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developed and continue to improved, methodical foundations of the implementation of tasks of environmental education by teachers of natural sciences studied.

But still not enough attention paid to the development of the ecological potential of the pedagogical activity of elementary school teachers and teaching subjects of the humanitarian and art cycles. The study of special pedagogical and methodological literature gives base to say that in recent time the environmental component taken a strong place in the content of the professional activities teachers of science, for whom various textbooks, manuals, methodological recommendations published.

Relations between ecology and engineering and biological sciences productively developed at the level of higher education. In these areas of scientific knowledge, more and more interesting scientific research appears. But supporters of the understanding of ecology as a natural science, engineering, biological science, to our opinion, underestimate its humanitarian and pedagogical potential[2].

Taking into account the fact that the protection of nature, the rational use of its resources is a priority national interest, it is necessary to activate the pedagogical potential of all teachers without exception to solve the problems of environmental education, taking into account and using the features of a particular subject area.

These considerations actualize the attention of researchers to the ecological and pedagogical aspects of the humanitarian sciences and the arts. But thus the entire younger generation of the country passes through the school education system, the environmental aspects of the professional training of teachers and teachers of humanitarian disciplines: history, philosophy, literature, native and foreign languages, educators of preschool education institutions and elementary school teachers deserve special attention of scientists.

Confirmation of the need of ecologization the professional and pedagogical training of the future teacher served the results of our study.

2 Materials and methods

Conducted study was aimed to the determination of the initial level of environmental literacy and attitude towards nature graduates of general schools, who entered the 1st year to the direction of training 44.03.02 Pedagogy of additional education and 44.03.01 Pedagogical education (primary education), i.e. future teachers. The investigation involved 75 students.

For realization of this goal, the method of questioning used. To find out the place of nature in the system of values orientations of future teachers, the most popular method for studying the value orientations of M. Rokeach, based on the direct ranking of the list of values used. Respondents offered a mixed-type questionnaire, including closed-ended and open-ended questions. Taking into account that the system of values orientations determines the content side of the personality’s orientation and forms the base of its relationship to the surrounding world, to other people, to itself, the basis of the worldview and the core of the motivation for life activity, in the base of the life concept and “philosophy of life”, M. Rokeach highlights two groups of values: terminal and instrumental[3]. Terminal values reflect the belief that the ultimate goal of individual existence is worth striving for and instrumental embody the belief that a certain course of action or characteristic of personality is favored in any situation. This separation corresponds to the traditional division to values-goals and values-resources. Respondents were presented two lists of values for 18 in each, on sheets of paper in alphabetical order. In the lists, the respondents had to assign each value a rank number. The instruction for the work with the tables included advice on carefull studying the tables, choosing the value that is most significant, and placing it in the first rank, on the further choice of the second most important value and placing it after the first. Then the same had to be done with all the remaining values. The least important remained last and take 18th place. To get truly relevant results, students were encouraged to work thoughtfully and slowly.
3 Results

The results of processing the questionnaire of a mixed type gives the opportunity to speak about the insufficient level of environmental literacy of yesterday's graduates of general education schools. According to investigation the nature consider as: an object of protection, beauty, benefit, study. Though the understanding by the majority of future teachers (68%) the necessity to protect and conserve natural resources inspires some optimism that, with targeted training of students, they will have the appropriate competencies for effective solvation the tasks of environmental education. Twenty-one percent of the respondents consider nature to be a source of beauty, which actualizes the need to teach schoolchildren to see and appreciate this beauty. 7% of respondents consider nature from a utility position, taking into account the benefit that can be received from it. And a very small number of future teachers (5%) consider it necessary to study and learn about the natural habitat of man and mankind (Figure 1).

![Fig. 1. Understanding the essence of nature by freshmen-future teachers (made by authors)](image)

The answers to the questionnaire question about what is the essence of the concept of "ecology" evidenced about scientific approach of future teachers to its understanding (58% of respondents answered that ecology is a science). At the same time, the majority number of respondents (40%) associate the term "ecology" with the condition of the environment. Only a few number of respondents (2%) understand the essence of the concept of "ecology" as environmental problems (Figure 2).
This situation indicates the need to organize purposeful systematic work on environmental education of the general population and environmental education of future teachers, especially in primary school. This is important because the primary school age is the most sensitive period for the formation of a responsible, careful attitude to nature based on emotional perception of children. Although anthropomorphism as a mechanism of appearance subjective perception of natural objects in preschool age replaced by subjectification at primary school age. Investigations made by specialists proves that the cognitive subject-non-pragmatic type of subjective attitude to nature is generally typical for primary school age, which must be taken into account by the future teacher in the process of solving the problems of environmental education.

The open-ended question of the mixed questionnaire assumed that the respondents knew the important ecological problems of contemporaneity. The questionnaire proposed to name the three most important global environmental problems. Three environmental problems were named by 65.17% of respondents, 24.1% of the respondents were able to name 2 environmental problems, 8.05% of future teachers named only one environmental problem, and 2.68% of students did not name a single environmental problem. The results of the survey seem to be quite good, but at the same time, raising the level of environmental literacy of future teachers is a rather urgent task for the system of professional pedagogical education (Figure 3).
The results of the written survey of future specialists actualize the need to study their attitude to nature and its resources, determine the place and role of nature in the hierarchy of value orientations, which was implemented using the method of studying value orientations by M. Rokeach, the results of which are presented in histogram 4. The place of nature in the system of terminal values of future teachers, and terminal values can be considered as goal-values, reflect the value priorities of future specialists. Since the methodology used a direct ranking of values, the shortest lines in the histogram symbolize the most significant values of the individual. The long lines of the histogram reflect those values that are on the periphery of interests values of future teachers. The red lines indicate the value priorities of future teachers of additional education studying in the system of secondary vocational education, and the blue lines symbolize the value orientations of first-year university students. Among all characteristics the most important for our investigation is nature. For college students, nature is ranked the 11th out of 18 places, Bachelor students ranked nature on 14th place in their system of terminal values. Such difference, to our opinion, can be explained by the difference in the meaningful component of the professional and pedagogical training of future teachers. College students receive professional education as teachers of additional education in the field of tourism and regional activity, which is most closely related with the study, use of nature for cognitive, aesthetic, recreational, developmental and educational purposes. Future elementary school teachers are limited by the cognitive component in relation to nature, as they study natural science and the methodology of its teaching as a sphere of their professional and pedagogical activity. Although extracurricular activities in primary school open up wide opportunities for the implementation of aesthetic, recreational and educational goals( Figure 4).

Fig. 3. The level of knowledge students about global environmental problems (made by authors)
3 Discussion

The need of formation an ecological culture of young people is conditioned by the progressive deterioration of the qualitative parameters of the environment, which requires the implementation of urgent measures for preservation nature and man as an integral part of it. One of the effective ways to solve environmental problems is the environmental education of young people as a integral culturological phenomenon that includes the processes of education, upbringing, and personal development. It should be aimed, "to the formation of ecological culture as a component of the system of professional and public education of all sectors of the population, ecologization of academic disciplines and training programs" through basic environmental education [4]. A special role in solving important existential problems belongs to the environmental training of future teachers for the realisation of the state task - the formation of an ecological culture of the younger generation. This article is an
attempt to theoretically comprehend the modern theory of environmental education and our long-term experience in teaching the "Fundamentals of Ecology" in a higher pedagogical educational institution, which will contribute to solving the problems of environmental education of young people. The need to adapt theoretical provisions of environmental education to the current socio-cultural and economic situation attract the attention of teachers from around the world. Methodological foundations of environmental education have been developed in pedagogy by V. Vernadsky, A. Zakhlebny, I. Zverev, I. Surovegina, issues of environmental education of young people made by V. Verbitsky, I. Igonina, R. Naumenko, the problems of ecologization of professional training future teachers described in works I. Koteneva, G. Marchenko, G. Tarasenko, E. Fneshir. The attention of most scientists is focused on the environmental aspects of training teachers of natural disciplines and subjects of the artistic and aesthetic cycle, and much less interest is caused by the problems of forming an ecological culture of the younger generation by means of humanitarian and artistic disciplines and the corresponding professional training of teachers who teach them. Therefore, our efforts are directed, on the one hand, to the formation of the ecological culture of teachers, and on the other hand, to prepare them for the realization of the tasks of environmental education of schoolchildren by means of the subjects they teach. The purpose of this article is to analyze the principles of environmental education on the base of generalization and systematization of the theoretical heritage of domestic and foreign experts in this field and the practical experience of teachers of pedagogical universities in this direction. Since environmental education is a field of pedagogical theory and practice, its organization provides the realization of general didactic fundamental provisions, such as the principles of democratization, independence, creative activity and self-regulation, consistency and systematicity, continuity etc. in the process of environmental education of young people, specific fundamental provisions should also be implemented with: integrity, interdisciplinarity, natural conformity, cultural conformity, interculturality, arising from the universal laws of integrity, interconnection and interdependence of phenomena and processes, the infinity of matter, the Universe, life, cognition, the educational process, substantiated in the works of F. Bacon, A. Sheftesbury, V. Vernadsky, Yu. Odum [5]. The harmony of a person with the environment means the harmony of thinking, feelings and actions of a person in relation with the environment. Specifically, this is the development of man, whose natural conformity L. Seneca, B. Spinoza and their followers saw in observing the laws of nature and its imitation [6]. The requirements of today dictate the need to improve skills and develop the creative activity of the individual. The implementation of these tasks contributes to self-realization and strengthening the position of the individual in the labor market. The effectiveness of education depends on the unity of pedagogical verbal and non-verbal influences on all spheres of the personality, on the consistency of the influences of micro-, meso- and macro-factors, on the optimal choice of forms, methods, means of training and education. In environmental education, the priority direction of organizing pedagogical efforts should be the development of the emotional and sensory sphere, since it provides the perception of the unique beauty of nature and its objects, the formation of a positive attitude towards the environment, the desire to study, preserve, increase its wealth. B. Reardon, E. Halmes and others prove that the principle of interculturality, the implementation of which contributes to the greening of the educational process, is determined by the globalization of environmental problems, the relationship between people, the internationalization of education, the interpenetration and dialogue of cultures[7]. The principle of interculturality, due to the multiculturalism (polyethnicity) of our country, implies "the integration of the culture of the people in the context of national traditional values in the common human culture" [8]. The development of the principle of cultural conformity of education and upbringing, first formulated and theoretically substantiated by A. Diesterweg, although the idea of cultural conformity can be traced back
in the works of J. Lock [9]. The German educator subordinates the principle of cultural conformity to the principle of conformity to nature, emphasizing that in the struggle against the distortion of culture we should find help from nature. The principle of cultural conformity means building an educational process on the basis of national traditions and developmental features of the relationship between man and the environment, nature management, the organization of material and spiritual production, the conditions of the historical, cultural, socio-economic and political development of the country. Environmental education should be built in close connection with the "history and culture of the people, their language, folk traditions and customs, ensuring spiritual unity, continuity of generations”[10].

4 Conclusion

An individual, acquiring new knowledge and skills, accumulates his own life experience and in a certain way influences the adaptation of a person as a biological species to the environment due to his involvement in culture. According to E. Stones, an individual, acquiring new knowledge and skills, accumulates his own life experience and in a certain way influences the adaptation of a person as a biological species to the environment due to his involvement in culture. The development and behaviour of the child depend not only on the biological adaptability of the species, determined by evolution, and its own experience, but also on the experience accumulated by mankind. Attracting and familiarizing students with cultural heritage is teaching by the means of thinking and mastering the content of the cultural heritage of mankind. To learn for a child means to know factual material, to be able to think, to strive to know the world and act in it, to respect the points of views of other people, to be able to defend your position. An important condition for the effectiveness of environmental education of schoolchildren, the observance of which is required by the principle of cultural conformity, is the interaction of the school with local communities, because the culture of the micro environment is the heritage of the child. The interaction between the school and the community will turn into a factor in environmental education when they have common goals and act in concert. Schoolchildren must realize their own responsibility for the existence of other biological species, provide them with opportunities and conditions for development and life, since it is young people who play a decisive role in maintaining the balance and diversity of life in the biosphere, natural resources, the beauty and uniqueness of nature for future generations, and the universal value of the environment for science and man. Consequently, the realisation of these fundamental provisions in the educational process in a higher educational pedagogical institution of a humanitarian profile and in a secondary school will provide the necessary efficiency in solving didactic and educational tasks for the formation of an individual's ecological culture. Further research needs rules realisation of principles ecological education of future teachers and mechanisms its implementation in the educational process, taking into account the social and educational needs of modern society.

References

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