

Formation of creative pedagogical system of continuous environmental education

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Abstract. The goal of this article is to form a creative pedagogical system of continuous environmental education as exemplified by the creative union of scientists and attendants of preprofessional and additional education, refresher and transition courses for teachers. The currently being formed system of continuous environmental education aids contextual education at the stage of higher professional education and professional advancement of teachers.

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Introduction

The urgency of the research topic is connected with the necessity to form continuous environmental education. Currently, the system of continuous environmental education does not exist.

The Professor I.T. Gaisin's perennial experience in this problem gives reasons to generalize theories, hierarchies (in this case, early childhood educational institutions, general education institutions, and secondary and higher education institutions), and models of continuous environmental education within the framework of the theoretical concept of creative pedagogical systems based on the analysis of natural geographic and humanitarian systems.

The 57th session of the UN General Assembly declared the 2005-2014 period the UN Decade of Education for Sustainable Development.

The research of the state of Earth biosphere by Dennis and Donella Meadows (1972), the works by A. Pececi (1980), B. Commoner (1974), N. Moiseev (1988), D. Likhachev (1991); The UN Conference on environment and development "Agenda for the XXI Century" (Rio de Janeiro, 1992), meetings on the highest level concerning the stable development (Johannesburg, 2002), documents by UN, UNESCO, UNEP, and others – all of them prove that solution of global environmental problems must start on the local level [1].

N.M. Mamedov and S.P. Glazachev understand environmental education as a continuous education process aiming perception of systematized knowledge on the environment, abilities and skills in environment protection activity, and formation of the general environmental culture. As they noticed, "overall environmental education is possible if an appropriate theoretical system of knowledge as well as the demand in its concretization and further development have formed".

The Academician I.D. Zverev who created the first concept of environmental education believed

that environmental education provided for pedagogically purposeful impact on the students, in the process of which they perceived the scientific principles of interaction of the society and the nature, mastered applicative knowledge and practical know-hows in optimization of the impact on the natural and transformed environment. The modern pedagogy justly understands environmental education as a pedagogical system characterized by the unity of goals, objectives and principles, the content of education methods and means.

It becomes necessary to unite the approaches to environmental education in the "preschool – school – higher educational institution (specialist, bachelor, and master programs, postgraduate and degree-seeking studentship) – refresher and transition training system" system, thus promoting creation of a system of continuous environmental education.

The systemic approach to consideration of pedagogical processes and phenomena is the ground for development of the pedagogical theory at the current stage.

The main conceptual framework of a systemic research was provided in the works by the philosophers I.V. Blauberg, V.N. Sadovsky, A.I. Uemov, B.S. Ukraintsev, and others. The analysis of their works evidences that the system is understood as a variety of interconnected elements, which create a stable unity and integrity possessing integrative properties and regularities.

The pedagogical system is defined as a variety of interconnected structural and functional elements subordinated to the goals of parenting and education of the rising generation and adult people.

An important element of any pedagogical system, which determines the fact of its creation, is its pedagogical goal.

The problem of the system of continuous environmental education on the school level was approached by A.I. Andreeva, V.N. Mikhelkevich, B.A. Kustov, and others.

The cognitive dissonance lies in the fact that formation of the continuous environmental education system is hindered by a row of causes, which include: fragmentariness, locality, and discreteness of environmental material supply at school; discreteness and weakness of integrative organizational and methodological ties of pre-professional education institutions with higher educational institutions, research institutions, and environmental and nature protection organizations. The strategy of education development stated by the National Education Doctrine of the Russian Federation bases on the role of education in development of the creative potential of a person and assistance in unlocking the creative potential of the person [2].

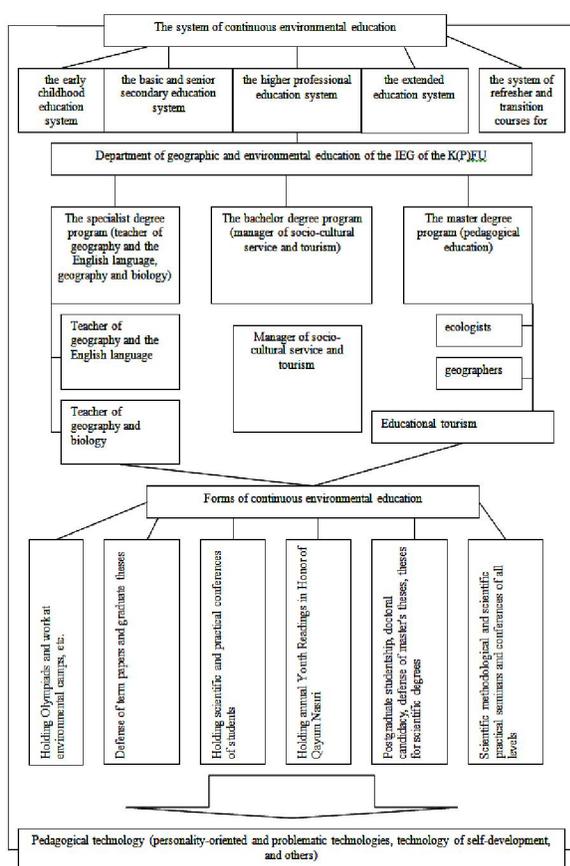


Figure 1. The model of the system of continuous environmental education

The method of professional self-fulfillment determines the creative pedagogical system.

As defined by L.V. Popova, the creative activity in professional environmental education is understood as "unassistedly planned research work, which is based on all studied disciplines and instrumental methods and targets obtaining new knowledge" [3, p. 79].

We associate the formation of the system of continuous environmental education with the concept of a creative pedagogical system and development of the I.T. Gaisin's school of science [4].

In June 1995 at the Thesis Board of the KSPU, I.T. Gaisin defended his thesis for the degree of a candidate of pedagogy, the subject of which was "Environmental and Moral Parenting of Students (of 4-9 years) at Studying Natural Disciplines", and in 2000, he defended the thesis for the doctor degree, the subject of which was "Continuity of the System of Continuous Environmental Education".

Thus, the school of scientific creative work was founded, the research subject of which were the issues of environmental education, which in their integrity and interconnection reflected the nature of pedagogical creative work and formation of the environmental education system (Figure 1).

Every pedagogical system is characterized by the structural and functional elements.

A pedagogical system can be created only when the society has accumulated certain information and practical experience, which are to become the subject of its perception by the participants of the education process and of the expansion of their environmentally-oriented vision.

In our model, we distinguish the gnostic element, and the elements of constructive projecting, communicative activity, and organizational activity.

The gnostic element, while presuming interest to knowledge available in the discipline-related spheres and spheres adjacent to the discipline; study of theoretical and methodological principles of environmental and pedagogical knowledge; proficiency in analytical and evaluative methods of main psychological and pedagogical regularities of parenting and education, and the knowledge how to apply them, includes:

historical and pedagogical prerequisites of development of environmental education, both in doctrines of great teachers-educators, and in educational systems, types of educational institutions, and separate schools of sciences;

the structured system analysis of the content of environmental education, which has revealed the most essential attributes providing continuity of this process: ensuring systemacity of environmental knowledge and skills; establishment of dynamics of educational knowledge, movement to knowledge development from the simple to the difficult; interaction of educational structures in the uniform system of continuous environmental education;

dialectic jumps in educational cognition from the preschool level to the level of institutes of professional development and transition of teachers;

pedagogical conditions for improvement of the quality of environmental literacy of senior preschool age children;

arrangement of interaction of preschoolers with the nature during the summer recreation period as a condition for environmental parenting;

organizational and pedagogical conditions for improvement of quality of environmental education;

structural elements and the integral model of the system of succession of the continuous environmental education;

the system of the succession implementation in the circumstances of educational and extramural activity at secondary and professional educational institutions;

problems of scientific generalization of the rural environment as a pedagogical condition for formation of the environmental culture of schoolchildren;

moral and esthetic attitude to the nature among the modern young student-age population;

development of research theories and skills in the course of fulfillment of environmentally oriented works by students of pedagogical higher educational institutions and others.

The element of constructive projecting includes prospective planning of strategic, tactic, and operational tasks and methods of their solution in the future activity of the academic teaching staff of the department, which tasks and methods are mentioned in the roadmap and indexes of teachers' performance, and reflects the ability of the individuals to carry out effective pedagogical activity.

The element of communication activity includes aspiration to and proficiency in analyzing one's experience and sharing the experience with others; proficiency in evaluation of one's achievements at work; and ability to apply the obtained knowledge practically.

The element of organizational activity includes the actions on implementation of a pedagogical idea by a particular organization.

The theoretical knowledge, the orientation to pedagogical creative work, the research nature of the activity, and the developed integral approach in the area of environmental education have allowed to build a system of continuous environmental education.

An important element of the formation of the system of continuous environmental education in the republic, which is based on the principles of continuity and succession, is the school.

At 73 educational schools of Tatarstan, the Ecology subject was introduced in the educational programs both for senior and middle pupils; and 217

elective and additional courses and 473 specialized unions operate there currently.

One of the main bearers of environmental culture and education was and is the system of additional education and parenting, which includes 8 environmental and biological centers and over 20 departments at multiprofile institutions of additional education.

Stable development can be achieved in case of overcoming the crisis of education, transformation of the conservative system of education into an advanced one, which would deliver information and values of the postindustrial society and would be oriented to formation of an active human with environmental and moral qualities and noospheric thinking.

Within the framework of implementation of the main tasks of environmental parenting, students are engaged in research work studying the environmental state of their native villages. Every year, decades of ecology take place at the schools, within which classroom meetings on ecology and outdoor events, such as the Birds' Day, the Earth Day, the Water Day, and the weeks dedicated to certain disciplines take place.

The students are prize and diploma winners of conferences of scientists and pupils of all levels: "The Geography and the History of my Native Village", "I am a Researcher", "The Recreational Resources of my Village", as well as of the all-Russian campaigns "I am a Citizen of Russia", the interregional social and environmental conferences "My Homeland", the Interregional Student Scientific Research Readings in Honor of Qayum Nasiri.

The communication-oriented teaching foreign languages using the method of projects by teachers of Tatarstan is based on the research works of foreign methodological science by L. Bachman, M. Swan, J. Van Ek, H. Widdowson, D. Wilkins, A. Wright, and J. Yalden [6, 7, 8].

The project activities at 6-9 years are based on the "World around us" study guide, which includes the following sections: Wildlife – next to your school; Help to survive!; Green in the UK; Local Area; Disappearing World; and Save our Planet [9, 10].

The results of implementation of the regional environmental policy in the Republic of Tatarstan are evidenced by the data of the rating evaluation of the Russian Federation' regions carried out in 2009 based on the special research of the Independent Environmental Rating Agency (ANO "NERA"). By the index of activeness of regions at solution of the issues of environment protection and ensuring environmental security, the Republic of Tatarstan is one of the leaders and holds the 9th place

among all regions of the Russian Federation and the 1st place in the Volga Federal District.

Active and conscious development of the creative potential of a teacher is implemented only in the process of professional activity and pedagogical interactions, thus defining the teacher's dedication to the creative part of professional activity and efficient pedagogical practice.

In the higher professional education system, the field practices are of special importance, as they allow students, the future teachers of geography and biology, getting acquainted with the variety of animals' species, estimating their place in the most difficult relationship of organisms taking into account their population, peculiar features of reproduction, trophic relations of a particular animal, and gaining practical skills of supervision and collection of invertebrates using various techniques and methods. The processed materials illustrated with tables, schedules, and charts and confirmed by the results of statistical processing, are reported at student's scientific conferences and become the basis for term papers. Field practices and researches are an important educational element of the contextual environmental education, they expand the opportunities of comprehensive study of the nature and train students for professional activity.

Professional and creative development and self-development of teachers of the Republic of Tatarstan in the course of active interaction with teachers of the department of geographical and environmental education of the K(P)FU is implemented within the framework of the joint project of creation and use of the multipurpose educational, scientific and informative "Electronic Local History Atlas of the Republic of Tatarstan".

Against the background of other regions of the Volga Federal District, Tatarstan possesses cultural and local history wealth defined by natural and resource endowment, unique cultural and historical heritage, versatile ethnographic structure, advantageous geographical position, and existence of a megalopolis – the city of Kazan.

The paradoxicality of the situation resides in that Tatarstan being a perfect region for development of interactive training is in a situation of deficiency of digital information on local history resources of the republic. The project tasks are creation of information and technological conditions for the local history education of the Republic of Tatarstan, based on a cartographical basis and promotion of natural values of historical and cultural heritage of the Republic of Tatarstan; uniform electronic local history information database in the form of an electronic atlas in the CD format and an information and search portal based on the cartographical basis

and reflecting real local history routes; uniform scientific and reasonable system of significant in local history terms cultural, natural, and historical objects; elimination of the lack of information on local history resources of the republic; transformation and representation of local history routes on federal, republican, and local maps; and formation of the cartographical and information basis for creation of new and individual routes.

In the system of professional development of geography, biology, and chemistry teachers, the special course "Methodology of Creation and Usage of an Environmental Path", which has allowed to trace didactic opportunities and rationality of use of an environmental path in the circumstances of a rural small school and to acquire corporate work experience of the school and higher education institution staff, etc. The special course gave the attendants of the course various environmental pedagogical skills: the design skills – experiment planning, development of the Ecology course; the communicative skills – organization of corporate work; the organizing skills – subject-object activity, rational time usage, implementation of professional plans; the constructive skills – ability of spatial restructuring of the educational process; the research skills – influence of the proximity of a large city on the environment.

Methods, forms, and didactic support of environmental education within the framework of the continuous environmental education will be included through the feedback system in continuous environmental education and parenting of the country population.

Full formation and operation of the creative pedagogical system of continuous environmental education "early childhood educational institutions – school – additional education institutions – higher educational institutions (the specialist, bachelor, and master programs, the postgraduate and degree-seeking studentship) – career development and professional retraining system" is possible upon conditions of consolidation of skilled and interested teachers, reasonable "greening" of certain school subjects, overcoming of subject-focused stereotypes, combination of the scientific and methodical work, integration of natural-science and humanitarian knowledge, scientific and educational and methodical synthesis of the accumulated work experience.

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