THE IMPORTANCE OF ECOLOGICAL EDUCATION AND EDUCATION AND THEIR COMPARATIVE ANALYSIS IN IMPROVING THE METHODOLOGICAL KOMPETENT OF FUTURE CHEMISTRY TEACHERS

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Abstract: In this article, the experience of foreign countries and the practice of developed countries in the process of developing the professional competence of future teachers of chemistry and didactically improving this methodical system in the educational system, research and national education efficiency of introduction into the system was analyzed.

Key words and phrases: chemistry, methodical system, importance of ecological education, work in small groups, experience of foreign countries, national education system, quality education.

INTRODUCTION

Improvement of environmental education and training in the countries of the world started early compared to Uzbekistan. In the countries of Northern Europe and America, the strategy of environmental protection was directed towards monitoring its condition at all stages. The inclusion of environmental protection issues in all spheres of internal and external policies of these countries was controlled, and the international community's attention to the fact that all human activities in the environment are fully compatible with the principles of sustainable development. One of the notable aspects of the new approach is that the public is given broad rights to freely receive and disseminate various environmental information.

According to international standards, environmental education includes education about the environment, with the help of the environment, and for the environment. These three components provide a holistic solution to the fragmented issues of environmental education and upbringing. For example, in Western Europe, environmental education and upbringing begins at the age of three, through children interacting with wild and domestic animals in special farms, and even taking care of them.

Educational work in the regions and countries that are among the top 20 "ecologically clean" countries, the formation of the potential of "Ecologically cultured person" starts from the pre-school educational institution. The main goal of this is to create the first elements of ecological culture in MTT students through environmental education and training. In general, in Western Europe, they try to create all the conditions for children to communicate with wild and domestic animals in special farms and to start environmental education and upbringing from the age of three by taking care of them.

In Uzbekistan, the first ecological concepts given to children of preschool age serve as a basis for education. Algorithmic stages of improvement of environmental education, i.e. from simple to complex, coherence and continuity, taking into account the age, physical capabilities and psychological characteristics of the students, targeted systematization of the relationship of theoretical and practical knowledge were taken into account. Acquaintance with nature is

the principle based on the selection of the content of knowledge - the principle of convenience. Based on this principle, knowledge that is easy for children to master is selected for programs intended for children of preschool age, taking into account their receptiveness and their individuality. This principle is manifested especially in the content and nature of knowledge defined for a certain age group.

In the process of improving the qualifications of personnel and their retraining, it is relevant to study the model of formation of professional competences of ecologists - the interdependence of the components of environmental education. This is related to the specific characteristics of the professional activity of environmental specialists and social demand [1]. For example, the main feature of the model created for the formation of professional competencies of technical-ecologists is the integration of these components, which strengthens the formation of comprehensively oriented specialists in the educational process.

LITERATURE ANALYSIS AND METHODOLOGY

Although various researches have been carried out by the scientists of the field in connection with the problems of the professional competence of chemistry teachers of higher education institutions and the methodology of teaching chemistry, however, the professional competence of chemistry teachers of higher education institutions, the research conducted in the field of identification methodology and improvement cannot be said to be sufficient. Based on this, there is a need to develop effective methods, forms and tools for improving the specific aspects of the professional competence of chemistry teachers of higher educational institutions, and the methodology for its determination.

Ecological culture is the formation of an active life point of view in solving the issues of the place of man in nature, the importance of nature protection activities for his hometown or village, keeping the land and air, lakes, and rivers clean. This activity, aimed at forming the ecological culture of the population and a careful attitude to the environment, is the guarantee of the safety of the future of all mankind. Today, the processes of integration of all levels of social consciousness and forms of culture within the framework of ecological interests are being intensified. In such a situation, it is appropriate to analyze two interrelated, but relatively independent directions in the process of development of ecological culture.

The first is to rationally organize the development of production, technique, and technology, which is the practical activity of mankind, which consists of changing and mastering nature, based on the complex of ecological theoretical knowledge.

The second is the development of ecological consciousness, thinking and worldview in people with the help of social institutions of ecological education and training based on historical ecological experiences. Harmonious development of these areas on the basis of universal interests will ultimately play a major role in the formation of an active ecological culture and their nature protection activities.

The modern world is going through such a period that education of ecological culture in young people has become one of the current directions of educational activity.

The ecological situation has its own characteristics. Man should coordinate the forces of nature not by force [2], but rationally without disturbing the balance.

Ecological competence - acquisition of theoretical ecological knowledge in the formation of ecological consciousness, culture, having understanding of nature, land, water, flora and fauna, natural resources and being able to communicate about them, being respectful towards

nature, able to rationally use natural resources, have skills in wide use of all effective forms and methods of cultural and educational work in the direction of environmental education and environmental education, including mass media, oral, visual and technical means to be Maintaining the balance between the ever-increasing needs of mankind and the diminishing opportunities on our planet, having ecological knowledge to protect nature is a sign of ecological competence.

"Natural science" lessons are the main subject of education in elementary grades in providing the first ideas about ecology. This educational subject will be very important in the formation of ecological knowledge and concepts. It is extremely important to organize classes in non-traditional ways in order to familiarize students with nature and regularly inform them about various environmental events. Teaching environmental concepts in primary classes is different in that environmental education for primary school students is carried out on the basis of interdisciplinary integration. The purpose of this is to learn about nature and to teach to preserve it, to form interdisciplinary theoretical knowledge, practical skills and qualifications related to ecological education.

In general secondary education, it is integrated into subjects such as Biology, Geography, History, Natural Science. Environmental education is not fully introduced in secondary special vocational education and is mostly conducted by teachers of related subjects due to the small number of hours. A similar situation is observed in higher education. As a result, environmental education, that is, personnel training, is carried out in a way that does not rely on the competence of students. By 2021, non-ecological subjects would make up 70-75% of the curriculum of "Ecology and environmental protection" education.

RESULTS

As a result of our research, another methodology for determining the professional competence of chemistry teachers working in higher education institutions was created and tested in practice. In particular, in this regard, higher education institutions teach general professional sciences in the field of chemistry bachelor's education (from the analysis of the literature on the subject, it became clear that, based on the world practice, inorganic, organic, physical as general professional sciences in chemistry , as well as analytical chemistry), a total of 100 test questions on chemistry teaching methodology, pedagogy and pedagogical skills, competence, normative documents were developed, these tests are the industry leader in terms of quality, level, difficulty level, suitability and other criteria reviews were received from experts.

In the course of the study, professors and teachers conducting classes in chemistry departments of HEIs (FarDU, NamDU, GulDU, Ko'kon DPI), as well as professors who were involved in training in regional centers of staff qualification and retraining under FarDU and UzMU - teachers were tested, the results were analyzed.

Based on the results of this analysis, based on the research conducted in our republic and abroad on the determination and development of the professional competence of a chemistry teacher, the study of completed dissertations and the set goal, 10 hours (6 1 hour lecture, 4 hours seminar training) course was created. The qualification requirements for chemistry teachers of higher educational institutions, the professional competence of a chemistry teacher, foreign experience in this regard, the theory and methodology of determining the professional competence of a chemistry teacher were covered. Classes for

this 10-hour course were held in the second half of the 2019-2020 academic year, 2020-2021, 2021-2022 academic years. During the training, the results of the preliminary tests of professors and teachers were analyzed, explanations and comments were given on the test questions that caused difficulties, foreign experiences on the professional competence of the chemistry teacher, on the development of professional competence recommendations were made. At the end of the course, professors and teachers were re-tested.

In order to determine the development of professional competences of chemistry teachers, it is important to constantly update their knowledge, skills and qualifications, to study motivation, realization and reflection skills in teaching.

During our research, it became clear that there is a need to improve the technology for determining the development of professional competencies of chemistry teachers. From this point of view, we analyzed the processes of acquisition of basic and subject-related competencies of education in the teaching paradigm aimed at the development of professional competencies of teachers and evaluated its functional stages from the point of view of developing acceptable competencies in students. The problem-based learning paradigm relies on the following criteria:

- the socialization of education - abandoning the technocratic approach to the process of training specialists, ensuring that the complex of acquired knowledge acquires a pedagogical and psychological character, forming a social mindset based on the ideas put forward in the content of universal, universal cultural values in students;

- based on the ideas of national independence in organizing the education and training process;

-relying on and improving the individual's ability to self-development and independent education in chemistry;

- achieving mutual cooperation in the professional formation of the person;

- in the course of education, there is an opportunity to select educational programs according to the abilities and interests of students;

- acquisition of pedagogical education as a fundamental feature, i.e., acquisition of invariant knowledge by students that provides the basis for creative development of the individual in changing conditions;

- formation of education that can fully respond to the constantly changing needs of the labor market and social processes, and on this basis, training flexible professionals;

- the continuity of education, the creation and development of a system of professional education (training and retraining) programs that ensure the results of each process stage of education, the teaching of a specific program at one or another stage of education or to be able to provide the opportunity to continue the winter in another type of educational institution;

- the equivalence of education, i.e. its level in accordance with the state educational standard, national culture and mentality, as well as international norms [3].

Criteria for determining the development of professional competencies of chemistry teachers

	CRITERIA	EFFECTIVENESS
	Ability to create motivation to understand the designed educational material; be able to determine	The implementation of the future plan is guaranteed,

	the main and essentially primary ideas; Recording, sorting, analysis, interpretation, modeling of information transmitted from the Internet on the basis of ICT.	the quality of education will increase
	Development of the skills of analysis, synthesis, analogy, prediction of the presented text related to the field of chemistry	Growth of the qualification category
	Development of professional competencies	Development of professional skills
	Development of motivation related to academic subjects	Effectiveness of mastering the training course
	Development of didactic competencies	being able to organize professional activities
	Advanced skills in working with chemical reagents	Being able to work with them freely
	Skills of using acquired knowledge in work	Growth of the qualification category
	Ability to work with laboratory equipment to acquire professional competencies	Growth of the qualification category

As shown in the table, the criteria of professional activity of chemistry teachers serve to increase their qualification requirements.

Discussion (Obsujdenie/Discussion). Wide use of the achievements of science and innovation activities in the world education system, consistent and stable development of all spheres of society and state life are becoming an important factor in building a worthy future of the country. In countries such as Russia, England, South Korea, and Japan, the training of competitive personnel with high professional competence is considered as the main direction of development, and the wide introduction of innovations in education, including modern, interactive and creative methods of teaching, is ensured. This, in turn, is important in the formation of competences for successful use of theoretical knowledge, acquired skills and qualifications in pedagogical practice in future teachers.

In the research carried out by the world's leading higher education institutions and scientific centers on the innovative training of future specialists, the implementation of modern education, the criteria of professional skills of future pedagogues, the introduction of the requirements of international educational standards are of particular importance. being directed. In these studies, didactic analysis of the structure and types of teachers' competence and scientific research aimed at improving the quality and efficiency of the teacher training process based on its results play an important role.

The educational process of improving the professional competence of chemistry teachers can be viewed in two ways:

Acquisition of professional skills and qualifications by the students they teach; formation of necessary qualities and abilities in them;

acquisition of best practices by future teachers, study of optimal conditions of the educational process.

Studying the essence of competence, its structural components, formation factors and conditions, types and classification of competence, the place and importance of competence will closely help to raise the quality of the teacher training process to a higher level that meets the requirements of the time.

Scientific researches aimed at increasing the quality and efficiency of the teacher training process based on the results of the didactic analysis of the structure and types of teachers' competences play an important role in the mentioned researches.

The introduction of the concept of "design" into the field of education is connected with the solution of a number of methodological problems, including the need to expand the terms of science, the revision of ideas about some traditional categories, their interaction with each other. expressed due to the necessity of relations.

It should be noted that a number of psychological-pedagogical works imply "planning", "predicting", "constructing". Along with such defined concepts of design, it is necessary to provide a full and clear definition of it.

In this case, the logic of planning the educational activities of a chemistry teacher of a higher educational institution can be expressed in the most general form as follows:

- determining the didactic goals of teaching, describing the expected didactic result in measurable parameters;

- justifying the content of chemistry teaching within the framework of the specialist's future professional activity;

- to determine the structure of the content of the chemistry educational material, its information capacity, as well as the spiritual connections between its elements;

- development of the process side of chemistry teaching: to know the experience that students should master and express it in the form of a system of practical tasks;

- search for special didactic aspects of mastering this experience, optimal methods, forms and means of individual (individual) and collective educational activities;

- to determine the logic of organizing pedagogical interaction with students in order to transfer the acquired experience to new fields of activity at the level of subject-subject relations;

- control of the quality of learning the curriculum.

Therefore, each of the above-mentioned stages differs from the others in terms of the tasks to be solved and the results obtained. This is consistent with the logic of the design process and ensures a guaranteed result.

To determine the professional competence of a chemistry teacher, it is manifested at the level of formation of technological competences of the students he teaches [4]. This is felt in the specialties "Chemical technology", "Physical chemistry", "Classification and certification of goods based on their chemical composition". During the teaching of these subjects, the student can carry out the chemical processes specified in the curriculum under certain conditions, predict the results, and improve the productivity and efficiency of the product in production.

One of the criteria is the condition that the methods conform to didactic rules. The next criterion is to serve for the compatibility of the content of the methods with the training and development of the educational goals and tasks of the learners.

Conclusion (Zakluchenie/Conclusion). To sum up, increasing the importance of environmental education and upbringing in improving the methodological system of future

chemistry teachers - at a time when interest in the issues of quality organization of education in the educational system is increasing, the methodology for determining the professional competence of a chemistry teacher taking into account that improvement is an urgent socio-pedagogical issue, to determine the criteria (acquisition of professional knowledge, skills and qualifications, formation of value-motivational attitude to pedagogical activity) and levels (intuitive, normative, active and creative) of the formation of professional competence in chemistry teachers will be an optimal solution to methodological problems.

References:

1.Abdunazarov L.M., Takhirov R.T. Environmental education, its provision and implementation in the national education system. Theoretical and practical foundations of the application of innovative ideas and technologies in the educational system. KSPI republican scientific-practical conference. Tashkent 2018. -B. 70-73. 4.

2.Makhmudovna, A. Sh. (2022/3/30).The Opportunity of Motivation in Grammar Lessons. European Multidisciplinary Journal of Modern Science, 646-649

3. Makhmudovna, A. Sh.(2022/1/5)The role of motivating lessons in teaching german as foreign language: TIPS AND IDEAS. Eurasian journal of academic research, (volume 1 issue9 2021 december)868,869,870

4.Kh.Ibragimov, Sh.Abdullaeva. Theory of pedagogy. Textbook. Tashkent., "Fan and Technology" publishing house. 2008.-288b.

5.Abdunazarov L.M., Takhirov R.T. Ways to create software tools in ecological education. "Issues of improving the teaching of mathematics and natural sciences in the continuous education system, organizational-pedagogical and methodological factors" Republican scientific-practical conference, Kokan 2018, -B. 156-158.

6.Abdunazarov L.M. Issues on Teaching Ecology in National Continuous Education // Eastern European Scientific Journal Germany, 2018 year #3. - P. 265-270.

7.Nigmatov A.N. "Ecotourism and its geographical features" (in the case of Namangan region). Monograph. - T.: "Navroz" publishing house, 2019. - 148 p.