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METHODOLOGICAL FOUNDATIONS FOR THE PREPARATION OF FUTURE CHEMISTRY TEACHERS FOR THE PROFESSION

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ABSTRACT
The purpose of this article is to study the knowledge of teachers in the field of chemical and technological science. Using new learning modules, new principles of computational chemistry for chemistry teachers are explored.

Keywords: chemistry, teacher, effective approach, scientific and methodological bases, vocational training, new modules, technological science, pedagogical science.

Introduction

Continuous professional development of chemistry teachers is necessary for any effective teaching of chemistry, as the subject of science and its teaching techniques are changing. Professional development is aimed at keeping the teaching of chemistry relevant and making it more meaningful, educationally effective and in line with current requirements. From pre-school preparation to continuous professional development, by providing models and examples of professional development for chemistry teachers, the authors guide the student through theory and practice. The authors discuss the factors that influence successful professional growth, such as workload, availability, and time constraints, and consider how we continue to train lifelong teachers of chemistry. lib, began by designing a learning environment based on computational chemistry, and then studied students' perceptions of computational chemistry. is a key factor in the teaching of chemistry. The content and pedagogical content of teachers, which is an important part of the professional knowledge base of teachers, ensures effective teaching and learning. This chapter discusses how future teachers and educators can learn chemistry. Thus, teachers need to have personal approaches to mastering chemistry in both the service preparation and vocational training phase: personal, social, and professional. In this chapter, we discuss the theoretical foundations of these issues and present the ideas and methods used by professional development providers to develop a sense of importance in making chemistry education more relevant [1].

The authors discuss the factors that influence successful professional growth, such as workload, availability, and time constraints, and consider how we continue to train lifelong teachers of chemistry. With a solid foundation in the literature and many examples from the authors 'rich experience, this book allows researchers and educators to better understand the role of teachers in effective chemistry education and the importance of their professional development.

The principle of integration requires a scientific explanation of chemical phenomena using modern information technology, computer technology and traditional teaching aids chemistry, as well as the functions of the interaction of the subjects of the education system, allowing to improve consistent communication The effectiveness of developmental education. The principle of integration creates the conditions for the constant interaction of the education system, this character. The effectiveness of sustainability bonds in solving common evolving problems is education. This principle requires a multidimensional information culture, critical thinking, theories and laws in the scientific explanation of chemical phenomena.

The structure of the ordered information-educational environment information system, the exchange of experience provides information activities of humanity. Under the learning environment we understand the set of conditions that provide the reflection of the real world (learning information is the object of storage, transmission, modification and management). The new information-education involves the formation of appropriate personality traits as a result of a learning environment that develops a scientific interpretation of chemical phenomena The collection, storage, processing and dissemination of chemical and other natural information in a combination of integrated media. An important task for this is to prepare students – future teachers of chemistry in the educational process at the university. The development of education, taking into account the information and educational environment of the school, the issue of information culture can not be ignored.

Teacher Information culture is understood as an integral part of its structure. party data, including an important component of scientific ability to explain both natural and artificial phenomena. What is important for teachers is that the use of electrons in the teaching of chemistry is a combination of educational resources in information technology. Minladi.

An evolvingly concentrated and imperceptibly integrated chemical education material of interest. Biographical information about it Scientists explain the mysteries of nature, virtual rational and irrational use of natural resources and others. In addition, the demonstration of non-harmful effects of chemical production on the environment (its wastes or harmful chemicals, waste), waste, unauthorized storage of waste in the environment, existing computer animation and virtual models of human events and disasters. The study and learning of cognitive activities that allow the integration of technology in chemical education in the process of computer training. All knowledge begins with wonder [2]. This leads to the development of curiosity, which is a new cause, and then the formation of interest in sustainable chemistry in students and the motivation to learn it; needs for self-development and self-improvement. However, it must be acknowledged that the skills formed in the

virtual world do not always correspond to real objects and are applied in the real world. raises environmental and chemical issues around the world. A brief description of the main functions as an explanation of the main functions Scientific ideas in the natural sciences and chemistry, including:

1) this is a specific interpretation of the discovery of logical-didactic methods of the studied theories, laws, concepts;

2) explanation – this is a method of comprehensive theoretical analysis that studies any object of natural science;

3) explanation is a method of proving the truth, facts, laws, phenomena about the essence of natural science, which studies the logical validity of conclusions [2].

As it turns out, in terms of didactic explanation.

It is up to the teacher to be aware of the important features (epistemological, psychological, didactic aspects) that the scientific process used in the study of science at school also has a number of features. An important epistemological aspect of pedagogical activity explanation, i.e. explanation reason, genetic, functional, structural, etc. The class teacher should plan the logic of presenting knowledge Think about logical explanation, i.e. choose inductive or deductive option explanation, o'Explanatory or explanatory model. As the most important explanation of the method of accounting, the psychological aspect involves the correct choice of logical relationships known to students, knowledge and new knowledge is opened. (The calculation of these relationships allows for the transfer of learned knowledge to a new educational and pedagogical situation and the determination of methods of transfer.) The didactic aspect involves pedagogical retention. Methods of optimal ratio of presentation in the classroom by the teacher Independent mental activity class for students to master knowledge. Taking into account these aspects, the objects of knowledge (chemical phenomena, processes, theories, laws, etc.), the objectives of their study, the teacher chooses the type of explanation, the logical method of explaining the levels and the degree of cognitive independence of students in the classroom.

Consideration of the main types of induction and deduction relations in an environment where new information and education are constantly evolving are important elements of the scientific and pedagogical aspects of teacher thinking. In choosing the appropriate ratio of induction and deduction, first of all affects the nature of the object under study (empirical or theoretical, material or ideal - the object of study), and secondly, the problem of knowledge is the object (assuming the existence of the object). necessary to obtain empirical data for) explanation of the theory of the object), thirdly, the logical relationship between the structure of the object and the structure used to explain the knowledge [4]. Consider the types of induction and deduction, the use of which is possible with a scientific explanation of chemistry. The first type – inductive and deductive ratio inductive construction of the training material includes three types. In disclosure, chemical concepts and empirical classification are applied at first glance. Causality, second look at the cases of problem solving in an intuitive conversation during the opening. The third type of inductive explanation corresponds to the intuitive solution of chemical problems. The second type -

the ratio of induction and deduction with two types – corresponds to the hypothetical-deductive method of studying chemical phenomena. In this case, induction serves as a means of generating hypotheses, a hypothesis-deductive method – a means of verification. Two option bases for formulating a hypothesis. The first option is a formulated inductive conclusion that is the result of generalization of experimental data. The second option is a cognitive task consisting of guessing (exiting) the knowledge of how to solve a particular chemical every day [5]. Moreover, in both cases the conclusion takes the form of theoretically based knowledge and hypotheses. Then the hypothesis is attached to the explanation, as well as new facts to deepen and prove the hypothesis. a basic hypothesis for solving the expected cognitive task by considering the logical path and teaching methods; prepare a slightly personal hypothesis or a low-level hypothesis of a high-level hypothesis; test the corresponding lower-level performance hypothesis experiment.

In conclusion, significant work is being done to improve the quality of research in higher pedagogical education and, at the same time, to develop the scientific and methodological basis for the training of future chemistry teachers [6]. It has been experimentally proven that positive results can be achieved in preparing future teachers for creative careers if: a) the main form of work is joint creative research, selection of optimal solutions to learning and cognitive problems, the predominance of group and individual creative forms. frontal work; b) the main role of the subject of teaching – a helper, a great, experienced friend, mentor and colleague, in the search for truth; c) the main task of the subject of education – the organization and involvement of subjects of education in the active process of solving various didactic tasks; d) the main task of the subjects of education – active cooperation in teamwork, constant self-improvement; e) the main result of education – the ability of the subject to independently transfer the acquired knowledge to new creative situations, self-awareness and improvement, increase the level of development of creative potential; f) the program is carried out in a specially created pedagogical environment. Continuous professional development of chemistry teachers is necessary for any effective teaching of chemistry, as the subject of science and its teaching techniques are changing. Professional development is aimed at keeping the teaching of chemistry relevant and making it more meaningful, educationally effective and in line with current requirements [7].

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