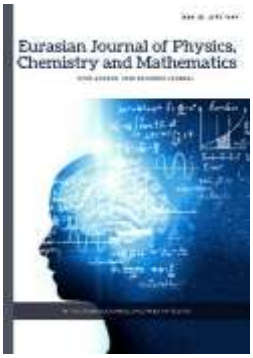

Principles for the Development of a Chemical Methodological System

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ABSTRACT

The analysis shows that there are many important principles that need to be taken into account in the development of a methodological system for the training of a future chemistry teacher, and these principles are discussed in the article

Keywords: Chemistry, methodology, system, development, principle, teacher, training

Introduction. Among the teaching aids that stand out in terms of content and importance, one can single out the curricula, which are officially written for students, and, in fact, are able to arouse interest in teachers, higher educational institutions students and even young researchers. One such tutorial is B.V. Martinenko's handbook for readers [1]. The manual was created taking into account the invariant and partial subinvariant complexes of the description of two important classes of inorganic compounds – acids and bases. In this manual, although not called invariant, complexes such as composition, structure, stability, acid-base properties, redox properties are highlighted separately. It has been reliably proven that the relativity of acidic and other general properties of hydrooxides depends on their hydrooxide and solvent nature.

In higher educational institutions, teachers of chemistry of general secondary schools are trained and their activities for 30-35 years are envisaged in the future. The teaching profession, first of all, has a humanitarian nature. Unlike other specialists in the field of Chemistry, a teacher of chemistry should not only know chemistry, but also be able to convey his knowledge to others (or rather to students) and educate them. Based on this, it can be said that the main goal is to train teachers who are able to independently improve their knowledge and teaching skills in chemistry.

Literature review. One of the most important professional and pedagogical issues of teaching in higher educational institutions is the disclosure of the proportions and connections between the course of inorganic chemistry, which is intended for school and taught in higher educational institutions. A.C. According to Goncharenko, two cases should be avoided as much as possible in this:

- statement of the material in the program at a high theoretical level: through it there is an interruption between the chemistry of higher educational institutions and the chemistry of the school;

-Bringing the chemistry course of higher education institutions too close to the school course: as a result, a student of higher education institutions will not have the opportunity to master it sufficiently.

It follows from this that the most effective way to professionalize the inorganic chemistry course is to pay close attention to topics and issues that are considered complex in the school chemistry course. The scientific range of the course of inorganic chemistry should be such that all the basic laws in the field of chemistry should be considered from the point of view of the latest achievements of science, as well as the formation of the future teacher of chemistry's own worldview on professional training in the course of the lesson [4]. At the same time, it is important to achieve that the content of inorganic chemistry and the form of its presentation will serve the formation of professional qualities in the future teacher.

Research Methodology. To the question of the methodological and methodological impact of various contexts, including professional contexts, on the process of optimal organization of training, V.M. A wide place in shabarshin's [2] studies is given. Research on the organization of a professionally oriented complex system of interconnected courses on selection I.V.Goreva [5] found expression in her work. When viewed in essence, a number of studies have been carried out in the field of contextual teaching. In them, the issues of teaching the methodology for organizing and conducting classes in chemistry in the process of studying inorganic chemistry were widely studied. To such work I.G.Prisyagina's empirical research on the inclusion of elements characteristic of professional activity in the content of laboratory and seminar classes in Inorganic Chemistry [6] can be cited as a sample.

Issues such as the reciprocal ratio of the concepts of" content "and" structural content", the separation of concepts and thoughts that form their essence as elements of a logical structure, methods for clarifying their fundamental essence during study, are reflected in the research of most researchers [6].

In any system, including in the content of inorganic chemistry, there is a correlation and correlation between the elements that form this system. These dependencies and reciprocal proportions determine the internal structure and form of Organization of systems, that is, their structural composition. The content of inorganic chemistry can also be considered as a system that contains information about substances and chemical reactions, that is, independent subsystems consisting of concepts, terms, properties.

Analysis and results. The elements of the initial part of inorganic chemistry include subsystems consisting of concepts specific to this section. These subsystems are formed by basic concepts, each of which is relatively modest. The development of small systems of concepts is carried out at the theoretical level, which is determined by general theories such as atomistics, the law of periodicity, the theory of the structure of an atom, the theory of elecrolistic dissociation, electronic theory. A small system of concepts is included among the large-scale elements of the structural composition. Only some separate concepts are considered as narrow-scale elements of a small system. The role and significance of large-scale concepts in the structural structure is determined by the general concepts of the structure of the course of inorganic chemistry. These concepts include ideas about general approaches to the formation of knowledge in chemistry. The status or status of narrow-scale elements in the course structure is determined depending on the relationship of the symptoms that express their essence. As a rule, it will be limited to theoretical levels of large-scale elements in structural composition. Private laws and phenomena apply to the order of "migratory" elements of content that are not part of the structural composition. Their place in the course is not strictly stabilized, that is, it is not clearly defined [4].

Content plays an important role in increasing the effectiveness of mastering the course. As a result of the analysis of the content of educational programs, textbooks and teaching aids in the chemistry course, the compilation of the content of the chemistry course of elements is carried out in the form of three: traditional, systemic-structural, systemic-genealogical content.

The logic of academic disciplines in teaching on the basis of the traditional

composition (content) of the chemistry course will not have a strict scientific justification. Individual topics of the course are not connected by means of a logical statement.

The theoretical formation of knowledge is ensured by the use of two manifestations of content structure – structural-structural and structural-genealogical elements.

In cases where the subject of the studied object consists of levels and complex systems, each of which has an alternative nature in ensuring the stability and continued existence of the system, structural-structural elements are used. In doing so, the links that occur in the validity of these levels as system generators are obtained.

Structuring on the basis of systemic-genealogical elements implies the future transfer of system-forming concepts, that IS, "cells", to the initial period (beginning) of Education. There are such manifestations as development, genesis, of the main links between these concepts, system-forming, and in the future-system-forming. This circumstance allows educators to carry out independent theoretical actions on educational science.

Currently, the structural composition of the course of general and inorganic chemistry, which is taught in foreign pedagogical higher educational institutions, appears as follows: the first section is the course of general chemistry, compiled on the basis of the linear – complex principle, and the second part is the chemistry of the elements. The differentiation between them depends on factors such as the volume of assimilation of theoretical materials, the degree of their mathematization, the equipment of laboratory rooms, the volume of hours allocated for the study of the course and the procedure for studying the course.

The andazal course at universities is studied in the first and second semesters, and sometimes even in the third semester, and it has a high degree of connection with mathematics, and laboratory rooms are also equipped with analytical devices that will be necessary to monitor the progress and results of synthesis processes, as well as laboratory classes performed in sufficiently complex physical chemistry courses in

The theoretical content of general and inorganic chemistry courses taught in higher educational institutions in the field of pedagogy provides for strict templates and the use of relatively simple mathematical tools. The course is designed to be mastered within sufficiently long periods. The laboratory rooms of the second semester will be equipped with devices and tools designed to show chemical reactions carried out in test tubes, as well as large-scale reactions. Laboratory classes aimed at the implementation of synthesis are transferred to the third course, and the study of the structure of the substance with a deepening is carried out in Higher courses.

In the near future, serious changes are expected to be made in the content of the training of future teachers, including in the content of inorganic chemistry, as well as in the organization of educational processes. In particular, in connection with the transition to the expected multi-level education system, it is necessary to further expand the section "classes of inorganic compounds" of general chemistry. This event provides the basis for the study of chemical disciplines within the framework of undergraduate education, even without a detailed study of the chemistry of elements. It is advisable to study the inorganic chemistry of elements in depth and widely at the end of the study of the courses of colloidal, physical and analytical chemistry on the basis of a master's degree.

It can be said that the educational literature used to study the chemistry of elements of higher educational institutions does not adhere to consistency and sequence in the introduction of the idea of the invariance properties of substances and their properties, and this does not take into account the cognitive needs of students. The fundamental purpose of a separate indication of the composition and structure of the educational content of inorganic chemistry, recommendations for working with this structure rely on the advantages of the idea of transferring the scientific system to the system of Educational Sciences.

Conclusion / Recommendations. The methodology for working with the educational

content of special disciplines in higher educational institutions, primarily those that are part of the chemical complex, should be selected and processed on the basis of the idea of \ u200b \ u200bThe transfer of academic subjects of the scientific system to the system and taking into account the professional context. This in turn necessitates the development of a methodology for organizing educational activities aimed at mastering the skills of ordering a professionally significant set of low-lying inorganic substances and describing their systemic properties, and outlining the properties of these inorganic substances with the help of research and creative methods.

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