

PREPARATION OF STUDENTS FOR INTERNATIONAL EXAMINATION STUDIES OF FUTURE CHEMISTRY TEACHERS FORMATION OF SKILLS

Shernazarov Iskandar Ergashovich

Nizami TSPU Department of "Chemistry and

Methods of its Teaching" Associate Professor. PhD

shernazarov_iskandar855@mail.ru tel: +99899-888-02-81

The decree of the President of the Republic of Uzbekistan "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030" on the basis of international experience provides for the introduction of advanced standards of higher education, including a gradual transition from education aimed at obtaining theoretical knowledge to educational programs to an education system aimed at;

such tasks as raising the content of higher education to a qualitatively new level, creating a system of training highly qualified personnel who will make a worthy contribution to the sustainable development of the social sphere and economic sectors, will be able to find a place in the labor market [1].

To fulfill the above tasks, international assessment programs in pedagogical universities and tasks were defined in accordance with the state of implementation of these programs. One of these tasks is to prepare future chemistry teachers for international assessment studies.

International Student Assessment Software-PISA (ing. Program for International Student Assessment) is a program that evaluates the literacy of 15-year-old students (reading, mathematics, natural sciences) and the ability to apply their knowledge in practice in different countries [2].

PISA tests are conducted in order to analyze the phenomena that schoolchildren need in real life, draw conclusions from them and determine to what extent they acquire the skills of entering into communication, how well the education system adapts to these changes [3].

The test was organized by the Organization for Economic Cooperation and Development (OECD) in a consortium with leading international scientific organizations, with the participation of national centers. The study will involve countries that are members of the Organization for Economic Cooperation and Development, as well as countries with cooperation relations with the OECD.



The PISA study is a monitoring study that allows you to identify and compare the changes taking place in the educational systems of different countries, to assess the effectiveness of strategic decisions in the field of education [4].

PISA tests are conducted in 7 areas of study: mathematical, natural science, financial literacy, global competence, joint problem solving and creative thinking. PISA studies to date have included 5 areas. For example: on the basis of reading, mathematics, natural science, financial literacy and creative thinking, mtoshiriki were prepared. Financial literacy tasks were formulated in combination with mathematical literacy.

PISA assignments focus on the fact that students know the most basic concepts in these areas, acquire basic knowledge and skills and can use them in life situations.

PISA tests use four different testing methods:

- 1) tests with one answer;
- 2) multiple-response tests;
- 3) questions to which a short or detailed answer will be written;
- 4) the reader's opinion about the solution of the problem (usually there are general answers to such questions in the controller, the reader's answer does not necessarily have to exactly match the answer of the test developer, the reader's creative approach is supported).

It is also planned to receive questionnaires from students at the same time as testing. Therefore, future chemistry teachers should be prepared for international examination studies. The reason is that future chemistry teachers should also be formed at the level of capacity-building personnel in order to prepare students of secondary schools in which they work for international examination studies and achieve good results after graduation. The international assessment of future chemistry teachers should be able to perform research tasks and have the skills and abilities to explain to students. Therefore, future chemistry teachers need methodological support in order to have the necessary competencies and literacy to perform research tasks on international assessment. Therefore, we will consider the methodology of preparing future chemistry teachers for an international assessment study. For example, in the sequence given below, we propose methods for the formation of literacy of future chemistry teachers based on assignments, as well as the formation of their skills and abilities [5].

Reading literacy: the ability of a person to understand and be able to respond to information provided in the form of a text, the ability to use the information read by



him in the process of active participation in the life of society on the way to achieving his goals, to increase his knowledge and capabilities.

Here the concept of reading literacy takes on a broad meaning. The purpose of this direction is to identify the reader's competencies in colorful thematic, such as excerpts from this work of art, biographies, letters, documents, articles from newspapers and magazines, various manuals, geographical maps, diagrams, pictures, cards, graphs and tables designed to disclose the text in order to be able to reflect on the content, evaluate. Consequently, when mastering topics in chemistry, the skills of future chemistry teachers are formed to work with diagrams, drawings, graphs and tables [6].

Mathematical literacy: checks whether a person knows the place of mathematics in the universe in which he lives, whether he is able to correctly and fully justify mathematical processes. Ensuring that a person can use mathematics to such an extent that he can satisfy the need of a creative, inquisitive and thinking person for current and future mathematical knowledge is the main goal of this section.

The term "literacy" in this section has been used to indicate that the purpose of this section is not to determine to what extent he has mastered the knowledge that is usually given in the school curriculum. The main focus is on the ability to use mathematical knowledge in various life situations, applying different styles of thinking and making managerial decisions that are required. But answering such questions may require knowledge and skills that will be given in the school curriculum. In tests of this direction, it is usually carried out in different spheres of life (medicine, housing, sports, etc.) situations related to mathematics that can be encountered are offered. For example: future chemistry teachers, upon admission to their universities, take entrance exams with knowledge of mathematics. Thus, they are staff with mathematical literacy. But it is necessary to develop and teach them the skills of working with students in order to improve their mathematical literacy. Literacy in the natural sciences is the competence to identify problems that can be solved in a scientific way in life phenomena, to draw conclusions based on observations and experiments. These conclusions are the main goal of this department - to bring down the world around us and to realize the changes taking place in it as a result of human activity, and, accordingly, to develop the ability to make the necessary decisions [7].

It is assumed that the basics of literacy will be given in the process of teaching physics (along with elements of astronomy), biology, chemistry and geography.

Competencies in the field of literacy in the field of natural sciences



A person literate in natural sciences will have the following competencies: scientific explanation of phenomena, design and evaluation of scientific research, scientific interpretation of data and evidence.

Competence in the scientific explanation of phenomena - technology, natural phenomena - knowledge, suggestion and evaluation of explanations of processes.

Competence in the field of design and evaluation of scientific research is to describe and evaluate scientific research and propose scientifically based ways to solve problems.

Competence in the scientific interpretation of data and evidence – scientific data of various manifestations, analysis and evaluation of evidence and drawing up appropriate conclusions.

future chemistry teachers demonstrate literacy in the field of natural sciences using assessment tools that reflect the types of scientific knowledge listed below:

knowledge of the contents of physical systems (physics and chemistry), living systems (biology), Earth and universe sciences (Geography, Geology, astronomy; methodological knowledge concerning the knowledge of various methods used to obtain scientific information (knowledge), as well as standard research processes; epistemic knowledge, that is, knowledge of the essence of concepts such as hypothesis, assumption and observation, as well as their justification, that our scientific fantasies are the result of our understanding of the possibilities of scientific research methods [8].

Knowledge of the content of natural sciences expresses the knowledge and understanding of future chemistry teachers about the main ideas and theories in science, including the history and scale of the universe, the structure of matter from particles, evolution. Knowledge of the content of science is understood as knowledge of facts, laws, ideas, theories about nature defined by science.

Global competence is the skills, values, and behaviors that prepare young people to develop in a more diverse and interconnected world. Citizens who are ready to work in a rapidly changing world and are able to solve joint problems are very important. In the XXI century and after it, all people need it.

Skills and abilities are formed to global competence:

he explores the world, formulating questions, analyzing and synthesizing relevant evidence and making reasonable conclusions that lead to further investigation;

selects and applies appropriate tools and strategies for effective communication and collaboration;

actively listens and participates in inclusive communication;



He is well versed in the digital technologies of the XXI century;
demonstrates resilience in new situations;
uses critical, comparative and creative thinking and problem solving.

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