

NATURAL SCIENCE LITERACY AS A FACTOR OF CONTINUITY IN THE STUDY OF CHEMISTRY

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ABSTARCT:

This article reveals the essence of the concept of natural science literacy, as the ability to use the main methods of cognitive activity to achieve the elementary, immediate goals of their activities. Its components are characterized. The content of natural science literacy and its levels are considered.

KEYWORDS: literacy, natural science literacy, creativity, functional literacy, competencies, scientific knowledge.

INTRODUCTION:

In connection with the rapid development of information technologies and their introduction into the practice of teaching in the theory of school education, first, there is a clear distinction between basic (elementary) and functional ("liberating") literacy, referred to in the English-language literature as "liberating". Secondly, the content of the concept of "literacy" is widely discussed both in universal and in various contexts (professional, cultural, legal, etc.). Thirdly, the structure of the phenomenon of literacy is seriously revised, including its various modifications, new types and types. From this it can be seen that in its semantic content, the problem of literacy is a kind of prism through which the entire rich set of tasks facing the educational system as a whole and its individual links is most clearly traced. There is a shift in emphasis from the understanding of literacy as a complex of

knowledge and skills acquired by a person in the process of life and learning (broad awareness), to comprehensive competence (from the Latin *competes* - appropriate, capable), understood as "awareness, readiness in a certain field of activity". This is reflected in the Strategy for the Modernization of Education, which identifies four structural components of the content of education:

- * The experience of cognitive activity, fixed in the form of its result-knowledge;
- * Experience in the implementation of known methods of activity in the form of skills to act on the model;
- Experience of creative activity in the form of skills to make effective decisions in problem situations;
- * Experience in the implementation of emotional value relationships in the form of personal orientations.

The use of the term "literacy" outside the semantic context of the problem of "education and activity" today is unlikely to justify itself.

Based on this, literacy in the theory of education is determined by:

6) In the narrow sense of the word-as the ability of a person to occupy a workplace with different quality of work and with a different set of necessary professional knowledge and skills; in the broad, socio-philosophical sense of the word - as a result of systematic educational activities, expressed in the active mastery of the sign system of natural or artificial languages, as well as in the ability to use this

system in order to learn about the surrounding reality and solve problems that arise in the course of practical activity.

Among the achievements of humanity, literacy is the most significant in the development of a person and society, since it is one of the factors of social well-being. The concept of "literacy" is associated with elementary literacy and functional literacy.

The most important task of school education is the social adaptation of students, which is carried out in the process of socialization. The effectiveness of socialization is influenced by the education of a person — the quality of a person, which consists in the ability to use in cognitive and practical activities the products of material and spiritual labor of people, guided by social norms and spiritual values. The level of education reflects the range of products of spiritual and material labor, social norms and values that a person is able to use in activities to achieve their goals. The initial condition for education is literacy. Elementary literacy is characterized by the ability to use the main methods of cognitive activity (reading, writing, counting, computer literacy as a language) to achieve the elementary, immediate goals of their activities. An important component of functional literacy, one of its main skills is natural science literacy.

Natural science competence, or literacy, is the ability of students to use their knowledge to identify problems in real-world situations that can be investigated and solved using scientific methods, in order to draw conclusions based on observations and experiments. These conclusions are necessary for understanding the world around us and the changes that human activity makes in it, and for making appropriate decisions.

Natural science literacy includes the following components: general subject (general academic) skills formed within the framework of natural science subjects, natural science

concepts and situations in which natural science knowledge is used. The objectives of the PISA study include a comprehensive test of these skills and concepts.

According to the OECD, every student needs to develop so-called skills - communication, creativity and critical thinking. Being generally recognized, this trend expands the conceptual field of expected learning outcomes. Now they include not only the usual knowledge, skills, and skills, but also the components of functional literacy.

Identifying the level of students' mastery of natural science literacy provides information about the attitude of the younger generation to the natural sciences, which are the engine of social progress. Natural science literacy can be characterized by the following four components, which are related to each other:

- Recognition of life situations that appeal to science and technology. These situations create an evaluative context;
- Understanding of the material world (including technology) on the basis of scientific knowledge, which involves both knowledge of the surrounding world and its laws, and knowledge of the natural sciences themselves. This component is the knowledge component of research;
- Possess competencies that include the ability to raise scientific questions, refer to existing scientific knowledge and use it, draw conclusions based on proven facts. This component represents the competence component of the study;
- Interest in natural science knowledge, the inclusion of natural science curiosity in their own value system, the established motivation to act responsibly in relation to, for example, natural resources and the environment.

This component is an affective dimension in the evaluation.

What is the content of natural science literacy (EN-literacy)? The appeal to the chemical side of the life of nature, man, many technological industries and processes, the sharply increased need for new artificial materials, the achievements of theoretical and nuclear chemistry, and others dictate the need to comprehend the chemical language already at school. Therefore, it is acceptable to talk about the following levels of EN-literacy:

1) Elementary EN-literacy, the content of which is related to the main characteristics of elementary literacy (in this case, knowledge of the chemical language, reading chemical texts, writing in the language of chemistry (chemical equations), and so on.

2) the level of functional literacy in the content of functional literacy, that is, the ability to use applied knowledge, special knowledge on a model and in a familiar situation with the inherent characteristics of functional literacy, empirical methods of scientific research; possession of general academic skills and abilities.

3) the level of general cultural EN-competence as the ability to use theoretical EN-knowledge to solve problems that require the participation of theoretical thinking in its types (conceptual and imaginative thinking); the use of some theoretical research methods, practical modeling; the ability to cooperate, be in a dialogue, use the functions of scientific knowledge within the known and new content.

A special selection of EN-literacy in the content of school education allows you to build the line consistency and continuity in the study of science throughout the school multistage vertical to provide a reasoned choice as a preparation for further education in the University, to study natural and related Sciences, the exploration and development of modern production, in which scientific knowledge, modern equipment and technology playing an increasing role.

New dictionary of methodological terms and concepts:

FUNCTIONAL LITERACY:

The ability of a person enters into a relationship with the external environment and to adapt and function in it as quickly as possible. In contrast to elementary literacy as the ability of a person to read, understand, compose short texts and perform simple arithmetic operations, F. G. is the level of knowledge, skills and abilities that ensure the normal functioning of the individual in the system of social relations, which is considered the minimum necessary for the implementation of the life of the individual in a particular cultural environment”

A. Leontiev: “A functionally literate person is a person who is able to use all the knowledge, skills and abilities that are constantly acquired during life to solve the widest possible range of life tasks in various spheres of human activity, communication and social relations”

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