

## ASSESSMENT METHODOLOGY OF FUNCTIONAL LITERACY OF STUDENTS IN THE PROCESS OF TEACHING CHEMISTRY

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**ABSTRACT:** The article presents an analysis of the methodology for assessing the functional literacy of students in the process of teaching chemistry. Changes in the education system include thematic resources, conducting scientific research, assessing students' knowledge in accordance with the requirements of the time, assessing students' functional literacy, as well as information on types of functional literacy.

**KEYWORDS:** Functional literacy, analytical-synthetic, comparative-comparative, analogy, modeling, diagnostic, expert, contextual.

### INTRODUCTION

Global socio-economic changes taking place in the world, including changes in the education system, special attention to natural-scientific literacy in the practice of training intellectually competent, talented, creative thinking specialists, international evaluation studies directed. In this, an integrative activity will be carried out, which will bring together various modern approaches to the organization of the educational process of teachers, and therefore will direct students' natural-scientific literacy and creative thinking into practice, and enable the formation of functional literacy for students in the educational system. In particular, in the international evaluation programs implemented by the Organization for Economic Cooperation and Development (OECD), the need to make extensive use of the achievements of science and innovation activity in the education system and to introduce changes in the education system was emphasized.

Education of all developed countries is recognized as a social process that actively affects the domestic policy of the country. The activities of a large number of scientific institutions that carry out pedagogical scientific research in developed countries are aimed at improving and improving educational programs. Effective research is being carried out to ensure that the quality changes in the field of education correspond to international educational requirements, to develop students' reading, mathematical, natural-scientific literacy and creative thinking, to participate in international assessment programs and achieve positive results. Therefore, it is recommended to carry out research aimed at the implementation of an educational environment that creates conditions for students to use their competencies, to realize their abilities, creativity, and initiatives.

According to the decree of the President of the Republic of Uzbekistan dated January 28, 2022, "The development strategy of Uangi Uzbekistan for 2022-2026" No. significant work is being done to improve and raise the knowledge and skills of pedagogic personnel to the international level, as well as the prospects of national development are being considered. In the continuous education system of our country, reforms aimed at ensuring the development of modern competences are being carried out in the general secondary education system, which provides for the formation of learning competencies in students based on advanced foreign experiences. "Radically improving the quality of general secondary education, in-depth study of other important and in-demand subjects such as chemistry, biology" was defined as one of the priority tasks. Implementation of reforms in all areas, monitoring the results, determining the effectiveness of the educational policy in the countries based on international ratings, and effective use of international research open up new opportunities.

PF-5538 [2] of the President of the Republic of Uzbekistan dated September 5, 2018 "On additional measures to improve the public education management system", April 29, 2019 "O Decree No. PF-5712 [3] on "Approving the concept of development of the system of public education of the Republic of Uzbekistan until 2030", dated November 6, 2020 "Additional measures to improve the education system in Ukraine" on" Decision No. PQ-4884 [4], Decision No. PQ-3931 of September 5, 2018 "On Measures to Implement the Principles of Public Education Management" [5], Decision No. 997 [6] of the Cabinet of Ministers of the Republic of Uzbekistan dated December 8, 2018 "On measures to organize international studies in the field of education quality assessment in the public education system" and other legal documents related to this field This dissertation research serves the implementation of the specified tasks to a great extent.

In the educational system of developed countries of the world, special attention is paid to the issue of improving the quality of education and appropriate participation in international assessment processes. Expanding the eco-humanitarian didactic sphere for future generations by ensuring the humanitarian principle of the educational paradigm, forming natural-scientific literacy among young people is of great importance, fully demonstrating the development of teacher and student qualifications of human ideas (personal ideas) that are at the center of competence approaches in pedagogical practice. is being evaluated in its implementation. From this point of view, it is required to improve the quality and efficiency of education, to monitor it based on international assessment programs, to create theoretical and methodological support for improving the criteria of creativity assessment.

International assessment of changes in education and research in the world based on programs such as TALIS, CIVIC, ICCS (International CIVIC and Citizenship Education Study) is expanding. One of the bright manifestations of such a pedagogical phenomenon gaining social relevance is the study of the scientific-theoretical and conceptual foundations of the use of international evaluation systems in the educational process, the development of theoretical and practical aspects of diagnosing students' subject competencies based on the use of national evaluation systems. Also, in countries where the education system is rapidly developing, large-scale scientific research is being conducted on the development of creativity and professional creativity of pedagogues, on the organization of their innovative activities to improve the quality of education.

In particular, the Australian Consortium for Pedagogical Research (AGER), the US Pedagogical Research Testing Service (ETS), and the Japanese National Institute for Educational Research (NER) use modern methods based on STEAM, STRIM, and SMART technologies to assess the professional competence of teaching staff. Improvement in accordance with the principles of implementation is gaining urgent importance.

Increasing the level, developing students' creative and logical thinking skills, thereby contributing to the improvement of the quality of education, is of particular relevance. PISA and TIMSS, in addition to determining the knowledge of students and the quality of education in the country, assess the potential of the younger generation. Taking into account the fact that 15-year-old students will actively enter the country's labor market in the near future and become the main capital, according to the results of the research, it will be possible to forecast the future competitiveness of the country.

The new monitoring system for evaluating the quality of education in Uzbekistan, approved by the Decree of the President of the Republic of Uzbekistan dated January 28, 2022 No. PF-60 "Development Strategy for the Further Development of New Uzbekistan in 2022-2026", a system based on identification and comparison using international evaluation programs is being formed. The use of international studies on the assessment of the quality of education is aimed at conducting monitoring of the quality of education based on mutual cooperation of pedagogues and students of educational institutions, employees of the educational system and parents, and raising their awareness and enriching their imaginations in this field.

In the address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis, special attention was paid to the issue of improving the quality of education and proper preparation for international evaluation processes, among the current issues of state and societal importance. The results of this research are the decree of the President of the Republic of Uzbekistan No. PF-60 of January 28, 2022 "On the Development Strategy for the Further Development of New Uzbekistan in 2022-2026", No. PF-6108 of November 6, 2020 "New Development of Uzbekistan Decree No. PF-134 dated May 11, 2022 "On measures to develop the fields of education and science during -Decision PQ-289 of June 21 "On measures to improve the quality of pedagogical education and further develop the activities of higher educational institutions" and other regulatory legal documents related to this activity this dissertation research serves to a certain extent.

Rapid reform and development of the education system based on the requirements of building the Third Renaissance in our republic, development of students' talent, cognitive knowledge, creative abilities on the basis of scientific research conducted by pedagogues, providing quality education based on their interests and needs, forming the creativity of young people. attention is being paid. Based on the results of international research, the national education system is being reformed, and the results of the research serve to improve the content of education (methodology of teaching and evaluation of subject concepts, curriculum and topics), training and professional development programs for pedagogues, and the creation of a new generation of textbooks. At the heart of this is conducting pedagogical monitoring of the evaluation of students' natural and scientific literacy by means of PISA and TIMSS tasks, enriching the

imagination of teachers and students about international assessment systems, preparing for international studies.

Level of study of the problem. Identifying the talent of general secondary school pupils and students, forming and developing creative competence is highlighted in a number of researches and scientific works; The development of basic and science-related competencies of pupils and students was studied in the scientific research of M. Vakhobov, M. A. Yuldashev, U. Inoyatov, and the issues of determining their logical thinking skills and increasing their creativity on this basis, diagnosing the level of knowledge N. Azizkhodjaeva, U. Inoyatov, B. .Khodjaev, U. Sodikov's scientific works.

The relevance of the problem of evaluating the quality of education is clearly demonstrated by the research conducted in the theory and practice of local and foreign education. Thus, in recent years, great attention has been paid to issues such as revealing the essence of the concept of quality of education. In Russia, several scientists have conducted scientific research in this field. For example: in revealing the essence of the concept of educational quality, V.P. Bespalko, G.A. Bordovsky, B.G. Gershunsky, V.P. Panasyuk, M.M. Potashnik, N.A. Selezneva and others, V.P. on pedagogical qualimetry. Bespalko, A.I. Su-Betto, etc.), quality of students' knowledge and skills (E.A. Krasnovsky, T.L. Kogan and Y. Lerner, M.N. Skatkin, etc.), level approach to student education (O.E. Lebedev, L.M. Perminova, A.P. Tryapitsina, etc.), monitoring and diagnosing the quality of education (B.P. Bitinas, V.V. Guzeev, I.Yu. Gutnik, V.A. Kalney, V.N. Maksimova, A.N. Mayorov, S.E. Shishov, A.P. Tryapitsina, etc.), assessment of student achievements (V.M. Blinov, V. Pisarev, V.M. Polonsky, A.N. Mayorov and others), competence-based approach (I.Y. Aleksashina, O.V. Akulova, V.A. Kalney, S.P. Pisareva, S.B. Shishov and others). Many works were performed by foreign researchers (K. Ingenkamp, I. Costa, R. Wohlseller, D. Nixon, G. Cawelti, M. Holt, etc.).

Tasks of the research: the problem, purpose and hypothesis of the research gave rise to the following specific tasks:

analysis of the situation of the problem of assessment of students' functional literacy in methodological and psychological-pedagogical literature and practice;

determining its quality parameters to determine the level of functional literacy assessment;

to determine the methodological features of functional literacy assessment and create a quality monitoring model based on this;

development of a methodology for assessing the quality of students' functional literacy according to their preferences using the technology of monitoring the quality of students' knowledge;

to experimentally verify the effectiveness of the methodology developed to assess the quality of functional literacy and make recommendations on its use in educational practice.

The subject of the research is the content, component structure, functions, organizational-pedagogical conditions, methods and tools of the development of the method of assessing the functional literacy of students in the process of chemistry teaching based on the integration of natural sciences.

## RESEARCH METHODS

In the research process, interview, questionnaire, theoretical (analytical-synthetic, comparative-comparison, analogy, modeling), diagnostic (surveys, testing, observation), prognostic (expert assessment, generalization), and mathematical statistical analysis (statistical processing of data), results monitoring and pedagogical experimental methods were used.

The scientific novelty of the research is as follows:

in the theory and methodology of chemical education, in order to determine the level of assessment of functional literacy of students in chemistry, the context of its quality parameters based on the competence-based integrative approach was developed.

Methodological features of evaluating the results of chemical education based on functional literacy have been clarified, a model for monitoring the quality of knowledge has been created by modernizing the methodology for evaluating students' creative thinking and creating a modern methodology for evaluating Republican universities in chemistry;

using the technology of monitoring the quality of students' knowledge, the methodology of assessing the quality of students' functional literacy by subject, the methodological and theoretical bases of the methodology of evaluating students of the republic's universities were determined, and methodological approaches, leading ideas and methods were developed; didactic materials for scientifically based organizational-pedagogical conditions have been improved as a result of experimental verification of the effectiveness of the methodology developed to assess the quality of functional literacy and recommendations for its use in educational practice, and pedagogical models that serve to develop, diagnostic methods and training technologies

## CONCLUSION

In conclusion, it can be noted that studying the evaluation criteria of students and making changes to these criteria in accordance with the requirements of the time is one of the most urgent problems in the education system today. In the course of our research, we are carrying out this scientific research work with the aim of partially eliminating these mammos and introducing some forms of criteria into practice.

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