OPTIMIZATION OF INORGANIC CHEMISTRY TEACHING METHODS USING TRAINING TESTS IN HIGHER EDUCATION

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ABSTRACT

This article reveals about the ways and methods how to improve the teaching methods of inorganic chemistry using training tests in pedagogical universities and institutes, to develop the content and structure of training test tasks using a computer training program, to conduct a pedagogical experiment and interpret the results obtained, to formalize them in the form of scientific and methodological publications.

Keywords: informatization, reproducibility, integrity, controllability, high-quality assessment.

INTRODUCTION

Currently, the main task of the development of higher education in Uzbekistan is to improve the quality of training of specialists, the introduction of active forms of education and timely integration into the global educational space.

In recent years, significant changes have been taking place in the education system, the meaning of which can be defined as follows: there is a search for a new educational paradigm that corresponds to the trends in the development of society. The transition to new forms and methods of conducting classes is underway. Modern teaching technologies are a powerful, effective tool, the didactic capabilities of which potentially exceed those available to other teaching methods.

Under the influence of the process of informatization, a new social structure is currently being formed - the information society. The information society is characterized by a high level of information technologies, developed infrastructures that ensure the production of information resources and the ability to access information, processes of accelerated automation and robotization of all branches of production and management, radical changes in social structures, which result in the expansion of the scope of information activities. It is generally accepted to understand the informatization of society as "a process of progressive and increasing use of information technology for the production, processing, storage and dissemination of information and especially knowledge."

The educational system in our country has entered a period of changes characterized by a new understanding of the goals and values of education, an

awareness of the need to move to lifelong education, new conceptual approaches to the development and use of learning technologies, etc. At the present stage of development of society, for the implementation of the tasks facing the education system, it is necessary to use new and more advanced methods and means of informatization.

New socio-economic conditions make demands for improving education. In these conditions, more than ever, the need for an initiative and active, professionally competent teacher who is able to continuously replenish the stocks of professional knowledge and skills, and a creative approach to his work becomes acute.

Chemistry plays an important role in the life of society. Ecological disasters, causing serious damage to nature, the environment and human health, also indicate the need to assimilate a certain minimum of chemical knowledge. Knowledge of chemistry makes it possible to provide an understanding of the role of chemistry in solving raw materials, energy, food, and medical problems of mankind, and contributes to the development of environmentally competent safe behavior.

In solving the problem of improving the quality of teaching students of medical universities, it is important to improve the methods of teaching chemistry. Since it is chemistry that equips the knowledge that they need when considering the physicochemical essence of the processes occurring in the human body, as well as for performing quantitative calculations of these processes. The main objective of the course in inorganic chemistry is to familiarize students with the sections of modern chemistry, which are the necessary theoretical basis for the study of biochemistry and biophysics, physiology, pharmacology, as well as mastering physicochemical methods that have been used in medico-biological and sanitary-hygienic research.

The foregoing determines the relevance of the research topic for practice and makes it necessary to solve this problem, which would improve the methodology of teaching inorganic and physical colloidal chemistry in medical universities and bring it to a level that allows a comprehensive study of the processes occurring in the human body. To solve these problems, it is necessary to move from the usual group lessons to individual, automated ones, to create incentive systems that increase the personal responsibility of students and teachers for the results of their work. The most effective improvement is the introduction of new teaching technologies. Teaching technology presupposes the optimization of the educational process and its integrity, controllability of the learning process, its reproducibility, the use of various technical means, didactic materials, methods that activate the educational process and high-quality assessment of educational work.

METODS AND LITERATURE REVIEW

Objective and reliable methods for controlling the assimilation of educational information include test methods for controlling students' knowledge. Theoretical issues of test control are studied in works of foreign
authors (A. Anastasi, W. Brown, H.A. Gulliksen, G.F. Kuder, M.W. Richardson, C. Spearman, E.L. Thorndike, etc.), in the works of Russian authors (V.S. Avanesov, M.S.Bernshtein, V.P. Bespalko, S.G. Gellerstein, Yu.Z. Ginzburg and others).

Well-known scientists of the republic, academicians H.U.Usmanov, O.S.Sodikov, S.Yunusov, Sh.T.Talipov also created their schools and made a significant contribution to the development of methodology.

However, in the works of Uzbek authors, the theoretical foundations and practical application of test learning have not been sufficiently studied. Some solution to this problem can be facilitated by the creation of teaching test tasks that can be used by students for learning and self-preparation.

DISCUSSION

This implies the need to improve education, the transition to the integration of traditional forms of education and modern teaching technologies, ensuring the development of intelligence, independence of students. The implementation of the goals facing the education system at the present stage is impossible without the use of computer technologies and informatization of education. One of the topical trends in the development of computer technologies in education is the development of specialized training systems and testing the knowledge of students. Their active use will help to maintain the required educational level of students, provide the teacher with the opportunity to pay more attention to individual work with students. Computer testing can be widely used in higher educational institutions not only for knowledge control, but also for teaching. For this, it is necessary to develop test tasks with learning elements. Computer training test tasks will help students in the process of studying chemistry, as well as independently disassemble and consolidate questions for this course.

Modern approaches to improving teaching methods have arisen due to a number of contradictions:

- between the objective need to improve the theoretical and practical training of medical students and the lack of theory and a specific methodological system for teaching with the use of educational testing;
- between the need to improve the methods of teaching the chemistry course at the university and the insufficient implementation of new teaching technologies;

- between the need to develop teaching methods using teaching tests in the process of teaching chemistry using modern teaching technology and:
- insufficient consolidation and development of knowledge in inorganic and chemistry;
- insufficient use of educational test tasks for independent study, consolidation and assimilation of the knowledge gained in inorganic chemistry.

If, in the scientific and theoretical terms, the content and structure of educational testing in the study of inorganic chemistry in higher education is determined and effective methods of its application are developed, then the theoretical knowledge of students will increase and the skills of applying the acquired knowledge in practice will be formed.

The methodological basis of the research is the fundamental work on general didactics, on the methodology of pedagogical science, decrees and directive documents of the Republic of Uzbekistan in the field of education. Domestic and foreign literature on the methodology and theory of pedagogy in the field of teaching various disciplines, on the improvement of methods, technologies and practice in the field of teaching chemical disciplines at the university.

The theoretical significance lies in the substantiation of the psychological and pedagogical basis for improving the methods of teaching inorganic chemistry using training tests. The practical significance of the work is associated with the possible application of the research results in the practice of teaching a course in inorganic chemistry with the help of educational test tasks on a computer as a means of increasing the level and quality of students' knowledge. The teaching methodology based on teaching test tasks can be used in the preparation of other specialties where this course is studied.

CONCLUSION

To sum up, the following are submitted in the research work:

- theoretical substantiation of the psychological and pedagogical foundations of the teaching methods of inorganic and physical colloidal chemistry using training tests;
- content and structure of educational test items in inorganic and physical colloid chemistry at a medical university;
- introduction of educational testing into the educational process using a new teaching technology in the study of inorganic and physical colloidal chemistry;
- a model of using teaching testing in inorganic and physical colloidal chemistry for medical specialties;

- the results of a pedagogical experiment of a methodology for teaching inorganic chemistry using training tests in a medical university.

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