THE ROLE OF DIGITAL TECHNOLOGIES IN SCHOOL CHEMISTRY

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Annotation
This article describes the new national idea of our country - the essence of the Third Renaissance, the stages of this process in Uzbekistan, the work being done by the government on the current problems in school chemistry education and their solutions and the requirements for modern teachers during the Third Renaissance.

Keywords: Third Renaissance, «rebirth», «teaching to learn», practical training, laboratory experiments, digital technologies, virtual experiments.

"From National Revival to National Rise".
This slogan, which is considered to be the national idea of today's Uzbekistan, reflects the essence of the Third Renaissance in our country.
I would like to clarify the term "renaissance": " "renaissance" in french means "rebirth". As a term, it has a much broader meaning: it revives and develops rapidly after a long period of stagnation in culture, science, art, education, and society in general, and the system of social consciousness and values enters a new qualitative stage. The term was first used in medieval Europe after the 15th and 16th centuries. This social phenomenon, called the Renaissance, was translated into Uzbek as the Renaissance".
It should be noted that the Third Renaissance coincided with the Fourth Industrial Revolution. For this reason, it requires, first of all, a technological revolution, a highly developed digital smart economy, and the emergence of a «smart society» in general. This, in turn, will require the gradual modernization, digitization, automation and robotization of society. This process is carried out at any stage of its financial, human, scientific and scientific-technological support of promising specific integrated programs need to be linked with the idea of a new Renaissance committed.
Due to the need for scientific, technological and technological support, all levels of education must be constantly reformed.
The decrees and resolutions adopted by the President in this regard ensure the continuity of reforms in the education system. For example, the Decree of the President of the Republic of Uzbekistan dated February 7, 2017 № PD-4947 «On the Strategy of Actions for the Further Development of the Republic of Uzbekistan» and the Decree of the President of the Republic of Uzbekistan dated April 29, 2019 Decree № PD-5712 «On approval of the concept of development of the education system until 2030», September 5, 2018 «On measures to introduce new principles of governance in the public education system» Resolution of the President of the Republic of Uzbekistan dated August 12, 2020 "On measures to improve the quality of continuing education and scientific efficiency in the field of chemistry and biology» № PD-4805 Resolution of the President of the Republic of

Uzbekistan dated November 6, 2020 № PD-4884 "On additional measures to further improve the education system" possible. It is based on the content of the priorities for the implementation of these decrees and decisions, which will continue to further improve the system of continuing education in the development of education and science, increase the opportunities for quality educational services, equipping educational institutions with modern teaching and laboratory equipment, computer technology and teaching aids, radically improving the quality of general secondary education, modern information technologies for in-depth teaching of sciences such as chemistry, biology tasks for the production of appropriate electronic textbooks are defined.

In the 21st century, neither teachers nor students need to be taught. Maybe they should be «taught to learn»!

According to my surveys, school chemistry teachers today face the following challenges in developing knowledge, skills, competencies, and competencies in students:

- far from the realities of the information given in textbooks. This is the most serious problem. This is due to the fact that the theoretical information in our textbooks is too much and students are not able to apply the knowledge they learn from them in life (it is very likely that the student will not encounter this information in real life at all);
- practical training and laboratory experiments. The expiration date of chemical reagents supplied to schools is usually set at 2 years. It takes years before the next supply arrives. Some schools do not even have a laboratory. In most cases, the experiment will not work. This is due to the fact that the reagent is out of date or lacks the skills of a teacher;
- lack of skills of teachers in the use of information and communication technologies. Over time, our teachers can already use the salty tools of digital technology, prepare and effectively use a variety of didactic materials to increase the effectiveness of the teaching process. Many of our teachers are far behind in the use of IT. The reason for this is simple, the lack of personal computer technologies. They can't afford to buy them.

Is there a solution to these problems ?!

Of course there is. The gradual implementation of the above-mentioned decrees and decisions will undoubtedly solve these problems for teachers. The solution to most of the problems in the education system and in today's chemistry education is closely related to digital technologies.

I can say that the first problem will be solved from the next academic year. The National Curriculum, which is expected to be adopted, and the new textbooks based on it, are aimed at developing practical competence only in students.

The best and most promising solution to the second problem is to conduct practical training and laboratory experiments using digital technologies. The use of digital technologies and applications to improve the effectiveness and quality of school chemistry courses and to meet the learning needs of students. Use of multimedia e-learning resources, virtual experiments and various simulations in chemistry lessons.

Because chemistry is an experimental science, knowledge and skills are reinforced in laboratory classes. Laboratory training often requires the use of toxic and noxious, flammable and explosive reagents, and sophisticated equipment. Virtual computer-based pre-laboratory testing can save reagents, ensure safety, and increase the efficiency of the learning process. For this reason, many now developed a virtual laboratory chemicals. Most of them were created abroad. In order to use these virtual laboratories effectively, it is important to translate the instructions for their use into Uzbek and develop appropriate guidelines.

The third solution to the problem: the next step should be a teacher. I can say that the modern education system, the creation of the educational process is closely linked to the introduction of

information technology achievements. This is especially true of new forms and means of teaching based on information and communication technologies. Therefore, today it is important not only to teach future teachers the use of ready-made electronic manuals, but also to teach them how to use new types of innovative technologies, methods and tools of creation. The modern teacher is mature in all respects, a master of his profession, has a modern work style, is aware of new teaching methods, constantly works on himself, strengthens his knowledge and skills, can use new innovative technologies, be a person who cooperates with qualified pedagogical staff. One of the ways to improve the content of education is to create the necessary conditions for the formation and development of educational resources for students, which are one of the most important tools for independent learning.

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