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THEORETICAL AND METHODOLOGICAL ISSUES OF MODERNIZATION OF TECHNOLOGY EDUCATION IN THE CONDITIONS OF DIGITAL EDUCATION

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Abstract:. This article covers the issues related to providing insights into the theoretical and methodological issues of modernization of technology in the context of digital education.

Keywords:... Digital education, technology, modernization, method, methodology, tendency, science of technology, technological literacy

Development of mutual integration processes between science, education and production is one of the urgent issues. In particular, in the modernization of technology education, the establishment of mutual integration processes of preschool education organization, general secondary education, professional education and higher education systems step by step, from simple to complex as a result, it is possible to train mature specialist personnel for production areas. Therefore, technological education should be modernized based on the concept of the Development Strategy of the Republic of Uzbekistan until 2035, the concept of the development of Uzbekistan's industry until 2025, the development of science and technical technologies, market relations and new requirements for human capital. From the analysis of the current state of technology science taught in general secondary schools and the accumulated experiences, the following was revealed: introduction of modern innovative methods of teaching students in general secondary schools achievement is one of the important conditions for the economy of the Republic of Uzbekistan to become one of the advanced industrial-technological locomotives of the world in the next 10 years, that is, to become one of the leading countries in the world in terms of industrial and technological sectors of the economy by 2030.

In the Address of the President of the Republic of Uzbekistan Sh. Mirziyoev to the Oliy Majlis, it is necessary and necessary to acquire digital knowledge and modern information technologies to achieve development, which gives the opportunity to take the shortest path to progress, and it is emphasized that today's enterprises are completely far from digital technologies. it was proved that

technologies can not only increase the quality of products and services, but also reduce excess costs, increase efficiency, in a word, dramatically improve people's lives. The tasks of developing and implementing the "Digital Uzbekistan – 2030" program, which envisages updating all sectors of the economy based on digital technologies, have been determined.

This creates more opportunities for modernization of the leading branches of industry and strengthening of competitiveness, introduction of advanced technologies in the field, establishment of high-tech enterprises, technological parks, production enterprises, construction of modern engineering and communication infrastructures.

Today, the formation of the necessary skills for education, living and working in an industrialized country among students studying in general secondary schools is becoming an urgent issue. Information and communication technologies have changed society in the last 30 years.

At the same time, large labor migration, underdeveloped social infrastructure, high levels of poverty and unemployment, outdated infrastructure, incompatibility of personnel competencies with the strategic goals of economic development, problems of intellectual property protection, limited opportunities for higher education, high technology and science-based underdevelopment of production, insufficient investment in human capital and image, lack of qualified employees, low level of qualification of middle managers and employees, lack of motivation for work among workers, prestige of labor and engineering-technical professions problems such as the falling of the roof, the use of outdated work methods are waiting for their solution. In their economic doctrine, developed countries pay more attention to combating external threats, while developing countries focus more on combating internal threats. One of the external threats for Uzbekistan is lagging behind in the field of development and implementation of advanced technologies.

One of the most important factors for eliminating external and internal threats, for a sustainable transition of industrial development to Industry 4.0, is to raise the teaching of technology in general secondary schools to a new level. A new wave of technological changes is expected in the industry, which will strengthen the role of innovation in the development of all sectors of the economy and reduce the influence of many traditional growth factors.

A delay in the development of the latest generation technologies can reduce the competitiveness of the national economy, as well as increase its vulnerability in the face of growing geopolitical competition. In particular, in the conditions of the new technological changes expected in the industry, the teaching of technology in general secondary schools is necessary for the development of creativity and work skills in students, and when they enter the stage of post-school education or

independent life. serves as the main solution in the formation of future basic competencies and outlooks.

Graduates of general secondary schools who have mastered the science of technology play the role of "drivers" in the further development of private engineering, scientific research and experimental design bases in all branches of the industry, in other words, in the production of high-value competitive industrial products. In the educational system of Great Britain, France, Germany, the USA, Israel, South Korea, the People's Republic of China and other developed countries with highly industrialized production processes, technology science is considered the main link of general education and is qualified for the world labor market. is considered one of the important stages and organizers of training specialists.

Due to the introduction of 11-year education in the system of the Ministry of Public Education and changes in the functions of the secondary special vocational education system, some gaps and shortcomings have arisen in the institutional development of technology education, including:

- lack of provision of integration between the State educational standard of technology science, qualification requirements, and other education systems in educational programs;

- lack of development of competitive alternative programs;

- lack of creation of national evaluation format and criteria, technologies, methodology; that the scientific methodical support of technology science (textbook, teacher's book, workbook, multimedia applications, didactic materials, etc.) is not sufficiently developed;

- the content of practical technology taught in general secondary schools is not sufficient for the formation of technological literacy, critical thinking and creativity competencies that can be used in independent life;

- lack of metasubject competences and interdisciplinarity in technology education; that the assessment criteria in the regulatory documents of technology are developed only for graduate competence and there is a lack of textbooks, workbooks and teacher's books, multimedia applications, didactic materials;

- the lack of inclusion of elements necessary for the development of the economy of Uzbekistan, such as mechatronics, robotics, electrical engineering, automation, arduino, in the content of the science of technology, has a negative effect on the professional qualities of future school graduates and specialists; lack of devices and equipment aimed at developing students' tactile competences in the field of modern technology, mechatronics, robotics, electrical engineering, and automation in order to form a strong motivation for students to study;

- that the material and technical base of the science of technology is outdated, not equipped with modern equipment and technologies, and proposals for taking sufficient measures to provide funds from the budget have not been developed;

-improvement of methodological support of pedagogues, lack of introduction of distance learning courses for technology teachers and mentors;

The fact that the quality of training of teachers and pedagogues in the field of modern technology in existing higher education institutions does not meet today's requirements requires a radical revision of the teaching of technology and updating it in accordance with the needs of the times. Based on the current state of technology science and the analysis of accumulated experiences, based on the existing gaps and shortcomings, it is necessary to determine the main trends in the development of technology science education.

These trends include: improvement from the experience of setting standards in the field of education of foreign countries with a developed education sector, taking into account national characteristics and the reforms implemented in the country;

- technology science to ensure compliance of the requirements of the State Education Standard with the international requirements for the quality of education and personnel training;

- developing and implementing qualification requirements for graduates of general secondary educational institutions in the field of technology based on integrated approaches;

- ensuring integration between the State educational standard of technology, qualification requirements, and other education systems in educational programs; development of competitive variant training modules;

- qualitatively updating the content of the science of technology, as well as improving the teaching methodology, gradually applying the principles of individualization to the educational process; the status of technology science, its mutual integration with general education subjects, and the organization of vocational orientation of students;

- the content of the science of technology, the formation of technological literacy, critical thinking and creativity competencies that can be applied in independent life;

- widely introducing effective forms, methods and means of educating students on the basis of national, universal and spiritual values into the educational process;

- introduction of modern methods and directions of technology education outside the classroom and school in the education of students and ensuring their employment;

- creation of national format and criteria, technologies, methodology of assessment; introduction of digital technologies and modern methods into the technology education process; implementation of innovative pedagogical and modern information and communication technologies to ensure the effectiveness and efficiency of the educational process;

- strengthening the material and technical base of the science of technology and increasing the effectiveness of providing funds from the budget; development of the economy based on free market relations and the priority of private property and the identification of the personality of the student, his aspirations, abilities and interests in the wide introduction of entrepreneurship and household activities;

- the following are defined as the strategic goals of science development in the implementation of trends: modernization of technology science based on the requirements of the labor market, socio-economically stable development;

- students should be able to apply the knowledge, skills and qualifications they have acquired in their independent practical activities, to choose a profession, to enter into social relations based on national and universal values, and to acquire the necessary competencies in the labor market. forming; creating the necessary conditions for students to develop technological literacy, critical, creative and systematic thinking, to make independent decisions, to demonstrate their intellectual abilities and to develop as morally mature individuals;

- The defined strategic goals are implemented based on the following tasks: creation of a consistent system of technology education at all levels of pre-school, general secondary, professional and higher education systems;

development of scientific methodical support of technological science; development of proposals for strengthening the material and technical support of technological science, providing it with modern equipment and technologies;

- formation of innovative infrastructure by introducing digital technologies and modern methods into the technology education process;

- achieving the status of technological science and its main role in ensuring the connection of fundamental knowledge with human creative activity and the interaction between the environment and general educational content;

- organization of mutual integration of subjects and guidance of students to professions; to serve as a base stage for the training of professions and specialists that are taught within the scope of science and are selected as promising for the economy of our country;

- personnel training, modernization of existing personnel supply and effective use of human potential;

- introduction of new methods of determining the skills to be acquired for the introduction of qualification requirements, as well as updated educational standards;

- development of an evaluation system based on the content of the subject, its specific characteristics, qualification requirements and competences to be formed; development and implementation of the Regulations for organizing the Science Olympiad;

- organization of contests and exhibitions of technology, including design, engineering, robotics, electronics, algorithms for solving invention problems for children;

- formation of a culture about the role of intellectual potential in the labor market;

- research and implementation of promising technological, modern standards-compliant directions; formation of design and research work culture in students;

- promote the popularization of advanced educational practices and encourage the diversity of forms of technology education; in a practical sense, knowledge in the field of technology is related to the transfer of technologies, in a broad sense, preparing the next generation to work with technological changes that may occur.

The established trends, the strategic goal and the results expected as a result of its implementation are as follows: technology classes included in the state education programs provide students with metaphysics, 21st century and life skills, solving problems that arise in non-standard conditions for graduates, all aspects of education development of engineering ability and creativity in the stages, as well as mastering work skills necessary for independent life, forms basic competencies and worldviews necessary for entering post-school education or independent life;

- State educational standard of technology science, qualification requirements, educational programs, competitive variant programs, scientific methodological support (textbook, teacher's book, workbook, multimedia applications, didactic materials, etc.), national evaluation format and criteria, technologies, methods are created; mutual integration of technological science taught in preschool education organization, general secondary education, professional education and higher education systems is achieved;

By introducing STEAM (Science - natural sciences, Technology - technologies, Engineering - engineering, Art - art, Mathematics - mathematics) education, it increases the level of literacy of schoolchildren based on the integration of sciences;

- technology education - formation of scientific and technical literacy, initial engineering skills and competencies of school graduates, at the same time, it allows to master the professional use of modern technical systems and technologies, design and management of technical systems;

science of technology serves as the main integrative mechanism in the system of general secondary education, teaches to apply the knowledge acquired within the framework of natural, scientific-technical, technological, entrepreneurship and humanitarian sciences at the level of meta-science, and is a practical part of general secondary education helps to strengthen aspects.

As the conceptual basis of technology education, it should be noted that learning technology based on modern requirements:

- in school graduates understanding, application, control, improvement and evaluation of technologies in the process of change; mastering universal activities such as design, research, management;

- choosing effective and correct technologies by demonstrating the ability to solve the problem of contradictions;

- creating new products, services, new ways of influencing work by forming non-standard thinking and acting skills, etc. choosing the right future profession that will be necessary in an independent life by acquiring various professional skills during the educational process;

- to work, to acquire new knowledge, to work independently and practice in order to achieve perfection; educating students who are flexible to rapidly changing economic, political, and social conditions and are ready to receive independent education in uncertain situations.

Raising technology education to a new level in the economy of the Republic of Uzbekistan: increasing the variety of products, increasing the volume of export and import through the production of composite materials based on new technologies; high-tech agriculture through the development of medium-sized farms and agroclusters, taking into account climate change;

- textile industry specializing in the production of brand products; energy consortium with a high share of renewable energy; export-oriented production based on new technologies; development of production and export of high-tech polymer products, cosmetics and medicines;

- creates an opportunity to bring entrepreneurship and household to a new level. through the modernization of technology education, socio-economically stable development, the application of the knowledge, skills and competences acquired by the students in connection with the operations performed during the technical-technological and technological process in their independent practical activities, choosing a profession, national and universal values on the basis of which it is possible to enter into social relations, to form the necessary competencies in the labor market. This, in turn, paves the way for personnel training, modernization of existing personnel supply, and effective use of human potential.

REFERENCES:

1. Address of the President of the Republic of Uzbekistan Sh. Mirziyoyev to the Oliy Majlis (January 24, 2020). // https://president.uz/uz/lists/view/3324#

2. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated April 6, 2017 “State education of general secondary and secondary special, vocational education 22” Improving the quality of general secondary education: content, methodology , assessment and educational environment" Decision No. 187

on the approval of the standards of the materials of the international online scientific and practical conference. - T.: Collection of Laws of the Republic of Uzbekistan, 2017, No. 14, Article 230.

3. Tahirov U.O. and others. Technology. Textbook for 8th grade students of general secondary schools. - T.: "ILM-ZIYO" publishing house, 2019.-160 p.

4. O. Koysinov, O. Tokhirov and others. Fundamentals of electrical engineering and electronics. Methodical guide. - T.: "Delta print" LLC, 2017.-116 p.

5. O.A. Koysinov, O.O. Tohirov and others. Polymer material processing technology. Methodical guide. - T.: "Delta print" LLC, 2017.-64 p.

6. S. Bekmurodova. A new approach to teaching technology. Methodical guide. - Tashkent. 2017.-140 p.

7. Takhirov U.O. The methodology of introducing the state educational standard and curriculum of the educational subject of technology into educational practice. // Methodical recommendation. - T.: RTM, 2017.-72