

## FORMING 21ST CENTURY SKILLS BASED ON A COMPETENCY-BASED APPROACH IN TECHNOLOGY EDUCATION

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### ABSTRACT

This article discusses the issues of forming 21st century skills in technology education based on a competency-based approach. The pedagogical importance of developing students' creative thinking, problem-solving, effective use of information and communication technologies, and teamwork competencies in the educational process is analyzed. Also, ways of forming students' professional and personal competencies through innovative methods and practical activities in teaching technology are shown. The relevance of increasing the effectiveness of education and training competitive personnel through the development of 21st century skills is substantiated.

**Keywords:** Technology education, competency-based approach, 21st century skills, creative thinking, communicative competence, information technologies, innovative methods, practical activities, professional competence, educational effectiveness.

### INTRODUCTION

The education of the young generation, which is the future of society, is one of the urgent issues, creating conditions for their thorough mastery of modern science and professions. The future of every people, every nation is inextricably linked with the fate of the generation that is coming of age today. In our country, attention has been paid to the development of the education system at the level of state policy over the past period, ensuring that our sons and daughters receive education in conditions that meet world standards, grow up as physically and spiritually mature people, in particular, creating conditions for the professional growth of students of specialized state educational institutions (schools and boarding schools) for students with special educational needs, and revealing their abilities, talents, and intellectual potential.

Technology classes encourage students to think rationally, be creative, improve their professional training based on the requirements of modern production market relations, and acquire the competencies to correctly apply knowledge, skills, and qualifications in practice for the effective use of physical labor. They play a key role in ensuring that they are not only physically healthy, but also spiritually healthy. At the same time, they help students fulfill technological requirements in production; comply with safety regulations; be able to independently plan their working hours; regularly monitor themselves; assess situations in the work process and make the right decisions; be able to creatively approach their work, show creative initiatives to introduce innovative technologies; feel personal responsibility and accountability for the work performed; form professional knowledge and skills, acquire a profession, and find their place in society.

Also, the Resolution of the President of the Republic of Uzbekistan No. PP-241 dated May 11, 2022 “On Additional Measures for the Development of Public Education” establishes the tasks of (... developing and approving model projects of technological science workshops and vocational practice rooms of general secondary educational institutions; taking measures to gradually organize and equip technological science workshops and vocational practice rooms of general secondary educational institutions based on the approved model projects) serving the further development of technological science teaching.

In the context of developing scientific and technological progress, it is necessary to intensify training, to fully utilize the full potential of the human body and mind in training, to train specialists who meet its growing demands. This also indicates the need for methods of systematizing and classifying educational materials, and digitizing training in the process of providing information.

In the conditions of accelerated scientific and technological development, products are distinguished by their scientific sophistication, originality, complexity, high quality and productivity. Due to the increased productivity of machines and equipment, their sophistication, the energy consumed per unit of product is also reduced several times. These conditions begin to impose appropriate requirements on the personnel training system.

The aim of the Technology Science classes is to develop students' technical creativity and thinking skills, to form engineering skills, to further strengthen vocational guidance by teaching them methods of processing various natural, metallic and non-metallic materials using technology, to acquire knowledge, skills and qualifications for vocational guidance in the basics of folk crafts, household science, electrical engineering, and robotics, and to form the ability to apply them in life.

The “4K” approach, as its name suggests, includes 4 principles:

**1. Creativity (creative thinking) skills** - students learn to use new approaches to achieve their goals, put forward innovative proposals based on non-standard thinking, develop innovative solutions, and acquire creative problem-solving skills.

**2. The skill of critical thinking (critical thinking) skills** - serves to find solutions to problems through observation and analysis, to critically evaluate information, to form one's own thoughts and opinions.

**3. Cooperation (collaboration) skills** - help to work together to achieve the goal, cooperation, effective exchange of ideas and mutual support.

**4. Communication (communicative) skills** - students learn to clearly and clearly express their thoughts, listen and understand the interlocutor, and effectively use language tools to convey information.

Based on these skills, students learn to approach problems from an analytical point of view and form their own point of view based on logical thinking.

No special conditions are required for the “4K” model to work effectively. For example, students' critical thinking skills are developed through problem assignments, cases, IQ tests, etc., and communication skills are developed through quizzes and exercises.

From the point of view of modern pedagogical approaches, corrective and developmental work carried out in the science of technology should be purposeful, systematic and consistently organized. In the educational process, it is important to activate the cognitive activity of students by consistently explaining to them the stages of preparing a particular item. In this case, the main pedagogical task is not only for students to acquire knowledge, but also to be able to apply it in practical activities, think independently and develop personal qualities.

The leading role in the educational process is played by the teacher. Therefore, the teacher must organize the educational process not only to impart knowledge, but also to develop and correct goals. This, in turn, requires a clear definition of the social and corrective tasks set for the subject, and the choice of effective organizational forms and methods for their implementation.

In technology, the formation of labor skills in students is of particular importance, and this process is based on specific psychological and pedagogical laws. The actions formed in the process of labor activity are directly related to mental activity, and they develop inextricably. From this point of view, the organization of independent, goal-oriented labor activity of students in technology education is an important factor in their mental development.

Mental actions formed in technology are manifested in the form of various skills and competencies. In particular, students develop skills such as working with oral and written instructions, using drawings and tables, performing measurements and calculations, planning raw materials, preparing sketches and templates, organizing the work process step by step, and controlling their own activities.

In the effective organization of classes in technology, each stage has its own tasks, and when they are consistently implemented, a solid foundation is created for the next stage. Otherwise, shortcomings in the initial stages can cause serious difficulties in the subsequent learning process. Therefore, the teacher must carefully plan and control each stage.

Also, one of the important areas of technology is preparing students for choosing a profession. In this process, students develop initial professional skills by working with paper, cardboard, fabric, wood, wire and other materials. As a result, they are prepared for independent work in the future.

In short, technology performs not only educational, but also educational and corrective-developmental tasks. Through this subject, students develop the knowledge, skills and qualifications necessary for life and work. Therefore, organizing technology education based on modern pedagogical requirements, especially combining developmental and corrective directions, is one of the urgent tasks of today.

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