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THE SCIENTIFIC AND METHODOLOGICAL SIGNIFICANCE OF PREPARING FUTURE TECHNOLOGY TEACHERS FOR PROFESSIONAL ACTIVITY ON THE BASIS OF AN INNOVATIVE APPROACH

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Annotation: At the current stage of development, one of the primary tasks of the higher education system is to prepare students for practical professional activity through innovative approaches. This article discusses the training of students majoring in technological education in accordance with national values, traditional crafts, modern technologies, and the requirements of production.

Keywords: Technology, innovation, potential, professional competence, professional activity, ability, performance, skills, innovative approach.

Main Text

Among the main directions of professional preparation in technological education are: integrating national and global experience, developing creative activity, and strengthening work ethics and social responsibility. Preparing students for professional activity through an innovative approach includes project-based thinking, solving professional problems, creating products, managing technological processes, and the ability to evaluate aesthetic aspects. Integrating national and global experience also involves incorporating elements of traditional crafts into the educational process through the STEAM approach. Developing creative activity enables students to cultivate aesthetic taste, interest in art, and the ability to generate new ideas. Work ethics and social responsibility help students develop diligence, teamwork skills, as well as ecological and economic awareness.

The bachelor's curriculum for the "Technological Education" field approved by the Ministry of Higher Education, Science and Innovation of the Republic of Uzbekistan, as well as methodological guidelines based on international experience (Finland, Japan, South Korea), highlight several methodological approaches: project-based learning, problem-based learning, interdisciplinary integration, and teaching based on local cultural and historical heritage. The project-based method directs students toward creating an educational product through real-life tasks. Through problem-based learning, students analyze and independently solve problems, which develops professional reflective thinking. The interdisciplinary approach connects technology education with art, history, geography, and physics. Teaching based on cultural and historical heritage includes integrating traditional crafts such as embroidery, goldwork, metal engraving, and wood carving into the educational process.

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In Japan, technological education is organized according to the "laboratory–production" model to develop students' practical skills. In Finland, project-based learning emphasizes continuous creative practice, where each student feels personal responsibility for their work. In Uzbekistan, practical training in technological education is conducted at craft centers in Andijan, Bukhara, and Kokand, where students learn traditional applied arts. Moreover, international experience increasingly employs individualized and learner-centered teaching methods, which help maximize the development of students' creative and technological potential.

In the process of preparing students for professional activity, the concepts of profession and specialization deserve special attention. A profession is a socially valuable field requiring both physical and mental effort. In the theory of vocational education, profession and specialization are distinguished: a profession is a broader concept that includes professional potential, autonomy, self-regulation, and group skills. Specialization refers to the set of specific knowledge, skills, and competencies acquired through vocational training. An area of expertise (sub-specialization) refers to the specialized knowledge and skills obtained within a certain professional field through training and work experience.

The systematization and typology of professions also play an important role. J. Holland classifies personality types oriented toward professions into six categories: realistic, intellectual, social, conventional, enterprising, and artistic. Each personality type corresponds to a specific professional environment and is directed toward creating material objects, performing intellectual tasks, establishing economic and social relations, engaging in structured activities, or carrying out creative tasks. This approach serves as an important methodological tool for identifying students' professional interests and abilities and guiding them toward practical professional activity (see Figure 1).

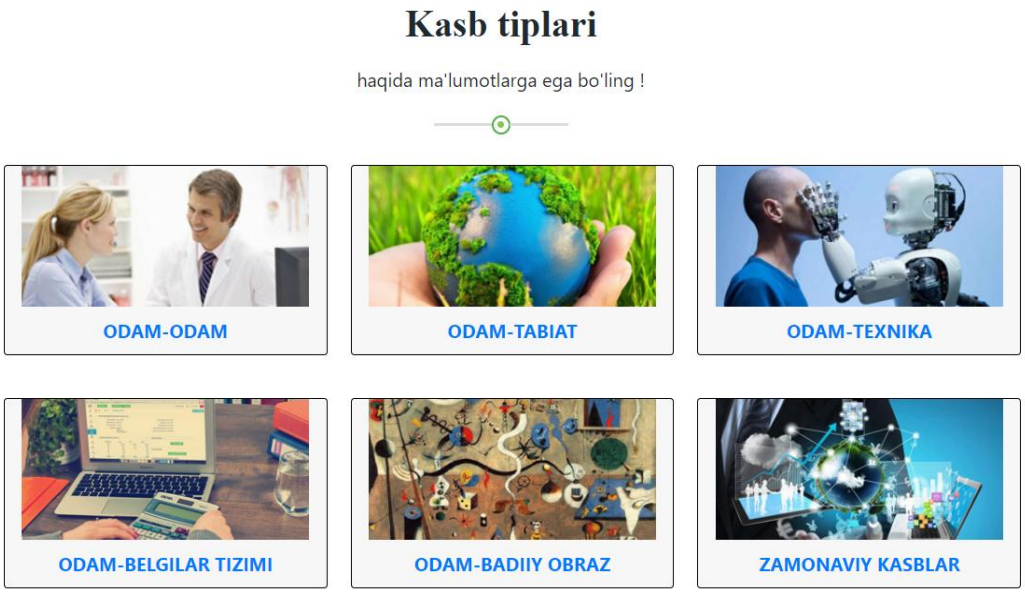

Figure 1. Classification and Types of Professions.

Professiography systematizes the process of preparing students for professional activity by studying the psychological and methodological characteristics of different professions. It

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examines the goals, functions, tools, conditions, and requirements of a profession, which contributes to the development of professional orientation and competencies. Practical skills are developed through innovative methods. Simulation-based training allows students to study production processes by reproducing them in virtual or real laboratory environments. Project-based and integrated learning activities, in turn, guide students to apply theoretical knowledge in practical situations. An effective methodology for preparing students for professional activity in the field of technological education involves harmonizing theoretical knowledge with practical skills, applying project-based and problem-based approaches, using interdisciplinary integration and national heritage, and developing competencies through a multi-stage assessment system. These approaches help enhance students' professional competencies, develop their creative and technological abilities, and integrate national and global experiences. Consequently, students specializing in technological education become competitive and highly qualified professionals in the modern labor market. The process of preparing students for professional activity in technological education includes not only the acquisition of knowledge, but also adapting them to real production environments and developing creative and critical thinking. A system of laboratory and practical training sessions is designed to enhance students' creative and technological potential. At the same time, taking into account students' individual interests and social responsibility, pedagogical methods are designed based on personalized approaches.

Project-based learning plays an important role in the development of professional competencies. Students independently create projects, select materials and technologies, analyze the results, and defend their work. For example, through the project "Design of National Applied Products," students learn to integrate traditional crafts with modern technologies. During this process, they take into consideration not only technical aspects but also aesthetic and economic factors. The integrated interdisciplinary approach trains students across several fields. By linking technology with art, history, physics, and mathematics, students improve their ability to understand complex systems. For instance, by studying the history of patterns, students learn to work with geometry and computer graphics, thereby expanding their technological and creative competencies. Teaching based on local cultural and historical heritage enriches technological education. By studying arts such as gold embroidery, needlework, and woodcarving, students not only appreciate national values but also learn how to integrate them with modern technologies. Thus, students' creative and professional potential develops simultaneously.

The assessment system also plays an important role in preparing students for professional activity. Evaluation is based not only on the final result but also on the learning process. Through defending projects, analyzing their work process, critical thinking, and reflection, students foster personal and professional growth. This prepares them for real working environments. The theory of vocational studies (professiology) serves as the main scientific foundation for guiding students in professional orientation. The distinction between profession, specialty, and subspecialty helps students identify their career direction. A profession unites a student's social and professional potential; a specialty develops specific knowledge and skills within the profession; and a subspecialty represents specialized experience and knowledge acquired during the learning process. Furthermore, the professiographic approach is also applied in directing students toward professional preparation. This approach studies the psychological and technical characteristics of the profession and helps determine and develop students' professional potential. Through professiographic analysis, students identify their

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abilities and strengths and weaknesses, which directly influences their professional development.

International experiences are also studied in preparing students for professional activity in technological education. In Finland, students participate in project-based practical activities and take personal responsibility for their work. Japan has introduced laboratory–production models, enabling students to study real industrial processes. In Uzbekistan, in craft centers located in Andijan, Bukhara, and Kokand, technological training is conducted based on applied arts. A psychological approach is also important in preparing students for professional activity. Students' interests, abilities, and temperaments are taken into account. Holland's theory of vocational typology is used to identify the student's personality type and to create an appropriate professional environment. By choosing a profession and activity type aligned with their personality, students effectively develop their professional competencies.

Practical training is crucial for strengthening professional preparation. Through working in laboratories, workshops, and real industrial environments, students connect theoretical knowledge with practice. This helps them develop professional skills, creative thinking, and teamwork abilities. Innovative approaches are widely used in preparing students for professional activity. Using artificial intelligence, IT tools, digital technologies, and blockchain-based platforms, students acquire skills in optimizing technological processes, creating new products, and managing production systems. In developing professional competencies, project-based, problem-based, and integrated teaching methods are combined. These approaches contribute to the simultaneous development of students' technological, creative, and social potential. They also help shape students' work ethics and ecological and economic awareness.

Studying foreign and local experiences is also significant in preparing students for professional activity in technological education. For example, in Finland, the project-based education system is oriented toward continuous creative practice, where each student feels personal responsibility. Students plan their projects, select materials and equipment, analyze results, and defend their work. This enhances their independent thinking, problem-solving, and creativity. Japan introduces students to real production through its "laboratory–production" model, allowing them to actively participate in different stages of production and develop practical skills. In South Korea, the STEAM approach widely integrates technology with art and social sciences, enabling students to understand complex systems and make creative decisions. In Uzbekistan, technological training is carried out in the craft centers of Andijan, Bukhara, and Kokand. Students study national arts such as gold embroidery, needlework, and woodcarving and integrate them with modern technologies. Through this, students' creative and professional potential develops simultaneously, and their connection with national values is strengthened. Within the framework of technological education, students gain the opportunity to combine national values with modern technologies. For example, by integrating elements of traditional crafts into 3D modeling and design, students develop their creative and practical competencies and gain the ability to preserve national heritage while transforming it into innovative products.

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