INTEGRATION OF PRACTICAL TRAINING AND TECHNICAL PREPARATION: SCIENTIFIC AND METHODOLOGICAL FOUNDATIONS FOR TRAINING TECHNOLOGICAL EDUCATION TEACHERS

D.Qodirov
National University of Uzbekistan named after Nizami

Abstract: *This article examines the integration of practical training and technical preparation in the education of future technological education teachers. It highlights the scientific-methodological foundations of this process and ways to enhance the effectiveness of pedagogical practice. The study analyzes the application of theoretical knowledge in school settings, the development of professional competencies, and alignment with modern industrial requirements. It also emphasizes the role of problem-based learning, practical research, and simulators in improving technological education.*

Keywords: *technological education, practicum, technical preparation, pedagogical competence, problem-based learning, simulator, methodology, industrial internship, didactic principles.*

The theoretical knowledge acquired by future technological education teachers in pedagogical higher education institutions plays a crucial role during their practical training in general secondary schools. The theoretical knowledge and skills mastered in higher education are tested for the first time in an integrated manner in the technological education practicum. This subject is unique because it is conducted in the school environment, and it helps future teachers develop new professional skills and qualities such as organizing pedagogical work and establishing teacher–student relationships. To ensure successful practical preparation, conferences, lectures, and discussions are organized to familiarize future teachers with the aims and objectives of the subject. Experience-sharing by senior students regarding practical training is also important. Additionally, special attention is given to creating a culture of diligence and ensuring psychological readiness for the subject. Future teachers attend the lessons of experienced educators and learn to analyze them, identifying the successful aspects. Methodological guidelines prepared by departments support their preparation in specialized subjects. When analyzing technological education practicum lessons, it is essential to adopt a creative approach and recognize elements of novelty in each session. V. M. Rozin considers such an approach to activity productive, noting that "a person's attitude— the personality type that determines these relationships— emerges

as the central core of activity.” He characterizes the appropriateness of activity as “a type of interpretation of the world, of the person, and the method of their mutual cooperation” [1].

Preparation for the technological education practicum begins with planning the lessons. The effectiveness of the lessons depends on the ability of future teachers to foresee factors that enhance cognitive activity and to organize them systematically. Observations indicate that many future technological education teachers face difficulties in conducting independent lessons and extracurricular activities. This highlights the need for systematic work on analyzing lesson plans, monitoring the preparation process, and addressing shortcomings. Difficulties are often encountered in distributing learning materials, explaining new topics, using advanced methods, and forming an individual approach. These challenges arise mainly because future teachers are dealing with practical work for the first time. Therefore, their preparation must harmoniously combine theoretical knowledge, psychological-pedagogical competencies, and personal qualities.

Students who perform well demonstrate that preparation should not be reduced to a standard pattern; instead, it must be based on creative inquiry. The requirements in methodological guidelines should reflect changes in teacher–student relationships, the dynamics of learning acquisition, and personal development. Teaching practice in production not only assesses the quality of preparation but also strengthens cooperation between schools and higher education institutions. During practice, future teachers are expected to contribute to improving work processes and to demonstrate such qualities as responsibility and teamwork.

When planning lessons, it is essential to consider students’ personal characteristics. However, some schools lack adequate methods for studying future teachers, which intensifies shortcomings in independent work. Therefore, it is necessary to create conditions from the beginning of practice to study pupils’ interests and characteristics. Temporary difficulties due to inexperience—such as being unable to manage the class, nervousness, or inability to maintain discipline—are largely caused by insufficient knowledge of pupils’ individual traits. The primary responsibility of production practice supervisors is to guide the development of future technological education teachers’ academic and professional interests. Modern schools face the task of improving the teaching and educational process in all subjects, including technological education, and of fostering well-rounded individuals while addressing issues related to labor, environmental, and civic education.

In this regard, it is necessary to improve the methodology of the technological education practicum, enhance future teachers’ technical and labor preparation, activate their cognitive activity, teach them to work independently, and introduce new content, forms, and methods into the educational process. Technical education requires that future teachers become familiar with the scientific foundations of modern production and evolving technology. Therefore, attention should be given to the general educational, scientific-technical, and socio-economic aspects of technical education.

The content of technical education must reflect changes in production—mechanization, automation, new energy sources, robotics, electronics, and trends related to increasing labor efficiency. At the same time, it is essential to prepare future technological education teachers to understand the laws of scientific, technical, and economic development of society, the importance of productive labor in agriculture, and to work effectively in technologically advanced production environments.

Pedagogical scholar M. Ochilov writes: “Teaching is a rare quality not granted to everyone. One may possess abundant knowledge, be able to communicate with students, master the basic methods of teaching, and even appear to be a master of the profession from the outside. However, if you lack genuine interest in students, do not care about their thinking, feel no need or desire to interact with them, and if you are emotionally distant from them — you are not a teacher.” He continues: “We need people who act not only on the basis of intellect but also on the basis of emotion. We need individuals who understand others, respect and feel for others, and who sense responsibility. The goal of training specialists is not to produce automatons or mere intellectuals, but comprehensively developed human beings,” he states [2].

Special attention must be given to developing practical and experimental skills as part of the technical preparation within the teaching process. For this purpose, it is necessary to increase the number of seminars, practical assignments, and workshop-based training sessions, as well as to intensify the assessment of students’ experimental skills and practical competencies. Excursions, meetings with industry specialists, and production-based internships play an important role in familiarizing students with school and industrial equipment. In developing teaching methods, approaches such as performing production-related tasks, creating devices and mechanisms, using simulators, organizing instruction through frontal, group, and individual formats, as well as conducting home-based and laboratory research, are essential. Each lesson must have clearly defined objectives, structure, and learning objects, and the applied methods must correspond to its purpose and

content. In technological education, methods must align with didactic principles and incorporate deductive and inductive approaches, discussions, hands-on practice, and problem-based learning strategies. Transitioning from frontal to group and individual instruction should be based on students’ capabilities. Practical research must be conducted in workshops and laboratories, with results discussed collectively.

In collaboration with psychologists and physiologists, it is advisable to introduce special simulators and diagnostic tools to develop labor skills and creative activity. Problem-based learning and practical research enhance students’ cognitive engagement and creative abilities. All these processes contribute to improving the methodology of technological education and ensuring effective organization of workshop-based lessons. The system of technological education methods can be classified into five groups: (1) verbal methods, (2) visual methods, (3) practical methods, (4) problem-based teaching methods, and (5) methods for assessing knowledge, skills, and technological competencies. A teacher’s adaptation to professional-pedagogical activity, as a social phenomenon, is directly linked to the richness of the social relationships in which the individual participates, since “an individual’s true spiritual maturity fully depends on the richness of his or her actual social relationships” [3].

In conclusion, as the general education school system undergoes renewal, the content of its teaching process also becomes more diverse in forms and methodology. The content of education is harmonized with national and regional characteristics, and curricula, programs, and textbooks are developed with consideration of the developmental stages of future technological education teachers. Therefore, ensuring that didactic principles evolve through various forms and methods during lessons remains one of today’s most pressing issues.

REFERENCES:

1. Розин В.М. Обучение, образование, культура // Вестник высшей школы. 1987. - №.2. - С. 20-26.

2. Очилов М. Янги педагогик технологиялар. – Қарши: Насаф, 2000. –118 б.

3. Лихач В.М., Гуревич Р.С. Преемственность содержания трудового обучения и професс

иональной подготовки учащихся. - М.: Высшая школа. 1990. - 111 с.

4. Qodirov M.M. Bo‘lajak texnologik ta’lim o‘qituvchilarining kasbiy sifatlarini shakllantirish // p.f.f.d.(PhD) diss.avtoreferati. –T.: 2020. 54 b.

5. Utayeva N.N. Bo‘lajak texnologik ta’lim o‘qituvchilarining kreativligini rivojlantirish metodikasini takomillashtirish. P.f.f.d. (PhD). Diss,. Toshkent – 2025.