

DEVELOPING TECHNICAL AND TECHNOLOGICAL COMPETENCIES IN STUDENTS OF TECHNOLOGICAL EDUCATION

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Article History

Received: 11/01/2025

Accepted: 19/01/2025

Published: 21/01/2025

Vol – 4 Issue –1

PP: - 30-33

Abstract

This article provides information on the main tasks that require a special approach to the formation of technical and technological competencies of future technology teachers aimed at their development, and gives recommendations for successfully solving the problems of the modern educational process. It is necessary to pay attention to the cooperation of educational institutions and manufacturing enterprises in the development of technical and technological competence of teachers of technological education of children. Such partnership is important to ensure the relevance of educational traditions and create the opportunity for students to adapt to modern market requirements. An important area of cooperation is the establishment of an exchange of knowledge and experience between research groups and industry representatives, stimulating their adaptation to changing market requirements and technological development. The plants in their newspaper showed that they are able to influence the process of training good employees, having specialists, which has become an important factor in their competitiveness and innovative development.

Keywords. *technical and technological competencies, digital technologies, case method, integration, pedagogical technology, trend, objectivity, logistics, educational paradigm, information and communication technologies.*

Introduction

Today, technical progress is developing very rapidly. Modern technologies for each field are being updated every day, requiring constant research from a specialist. In this period of development, one of the urgent issues of today is to educate students of higher educational institutions as personnel who are up-to-date, meet the requirements of employers, can apply production techniques in practice, and can work in a team.

Modernization of technological education has required a fundamental revision of the goals and objectives of higher education.

The content of disciplines and their educational and methodological support have been updated, educational technologies have changed. All this requires a creative approach to the educational process and its support by the teacher and student. Today, the student, who is a passive participant in the educational process, is interested in achieving active, full-fledged and tangible results.

In the process of technological training of a teacher of technology, the formation of his professional technological

values is of particular importance. The level of competence depends on awareness and activity in choosing methods for mastering an integrated set of knowledge. This is the integration of knowledge that provides the necessary potential for the development of professional competencies. We also consider the professional competence of a teacher to be the formation of various aspects of teaching activity and pedagogical communication in his work, in which the teacher's personal requirements are implemented to the extent that they ensure stable positive results in self-study and development.

The introduction of the concept of competence into educational programs is primarily focused on the student and his learning ability. The teacher retains the leading role in teaching, but his work moves from giving a ready-made description to giving advice and developing motivation for self-education among students [1].

Literature review

Influencing competence in pedagogy is not a novelty, but its stages have arisen in the interrelated educational processes. Issues of confirming teachers' professional competencies. B.

A. Adolfa, Yu. V. Vardanyan, S. M. Godnik, N. N. Lobanova, L.A. Orlov, E. M. Pavlyutenkova, V.G. Podzolkova, N. E. Shchurkova. N.V. Kuzmina, A. K. Markov, E. F. Zeer, V.A.Slastenin, M. Ochilov, U. Maxkamov, S. Ochilov, O. Musurmonova, N.A. Muslimov also found their descriptions in the isertlewers of others. Developed by foreign scientists, the Professional Competence of Employees (G. Moskovit, R.L.Oksford, R.S. Scarella, G. Yulius) appeared in scientific journals [3].

Research methodology

In the modern education system, special attention is paid to teaching, especially in the process of preparing technical books. One of the types of education that requires special attention to the formation of technical and technological competence in the training of technology teachers at the bachelor's level. These requirements are associated with the need to meet not only everyday knowledge, but also to increase the ability to apply their experience in practice.

Special attention is paid to the importance of technical and technological competence for future technology teachers. Because it provides the opportunity to transfer the learning process from the result to practice, technological innovations and technical achievements represent a set of practice-oriented knowledge, practice and scientific experience.

In today's rapidly developing society, where technological innovations occur every day, the ability of teachers not only to observe changes, but also to anticipate changes, has become a decisive factor for the effectiveness of the educational process. A comprehensive education system is being established that ensures the adaptation of students' technical and technological competencies to modern market requirements.

Students with technological competence not only learn technology, but also master the principles of learning, the ability to discuss and integrate from a critical perspective in the process of learning new technologies, at the same time teaching students to actively apply technological knowledge in everyday life and acquiring the ability to respect.

This is a set of knowledge and scientific experience, requiring deep theoretical knowledge and high-level practical skills from the teaching of technology, as well as a direct self-improvement of the specialist. The methodology for developing technical and technological competence proposed in the article is based on the integrative principle, which includes the following important elements: theoretical knowledge, practical experience, the right path and correctness. In this case, it provides the student with the necessary knowledge and adaptations, which will contribute to qualitative changes in the learning process and the formation of his own personality.

Theoretical classes are aimed at increasing students' in-depth knowledge of technology and engineering, understanding the history of their development, current state and future. This knowledge will be used in practice in the future.

Practical work applies the theoretical knowledge of students in real life, studies and applies his teachers in practice, performs quality tasks designed to use modern technological tools and methods. The necessary preferences in these requirements are transformed through practice, while at the same time giving the specialist the opportunity to make the right choice in solving problems [2].

Thus, the adopted methodology for the development of technical and technological competence has changed and is aimed at training new technology teachers, giving them the opportunity to solve the problems of the modern educational process.

Analysis and results

A necessary method for training future technology teachers is the introduction of innovative methods and technologies into the educational process. This is not only due to the rapid development of technical disciplines, but also to new educational standards, which require the integration of digital technologies into the learning process, which helps to ensure the adaptability of students to changing conditions (Figure 1).

Thus, the technology of introducing innovative principles of education becomes an important element in the development of technical and technological competencies of teachers.

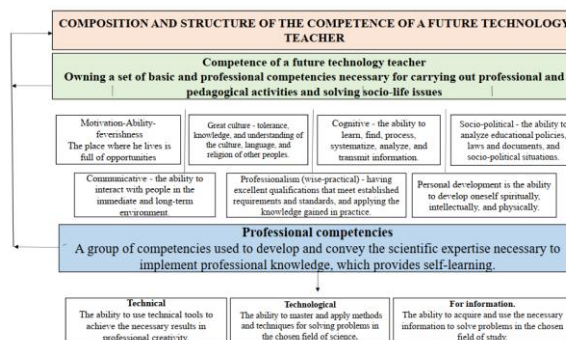


Figure 1. The form and structure of the competence of future teachers of technological subjects.

The process of forming technical and technological competence in teaching future technological disciplines requires special attention in the selection of educational foundations and principles. In modern educational areas, a methodology has been developed that includes the following stages:

- 1) Qualification diagnostics at the initial stage - at the first stage, the current level of knowledge, skills and scientific experience of applicants in technical and technological disciplines is determined. This allows you to adapt to individual changes in the learning process and determine the directions of further development.
- 2) Theoretical preparatory stage - using specific methods, students are given theoretical knowledge on the specifics of technical and technological disciplines. The method of lectures, discussions, and thinking mode use active pedagogical foundations, deeply perceive the material and

provide the opportunity to communicate from a critical perspective.

3) Honesty washing using modern technology - at this stage, special attention is paid to the practical application of the knowledge gained. Students study real types of sheep using modern technological devices and plants. This helps to consolidate not only theoretical, but also practical knowledge.

4) After students self-suggest to discuss their tasks, they identify the areas that require their tasks to be completed. It helps to develop thinking, self-talk, and maturity skills, which are skills necessary for future teaching.

5) Integration and systematization of knowledge - students apply and systematize the acquired knowledge and skills to solve related problems. This stage provides an opportunity to fully master the specialized skills and develop the ability to think innovatively.

This stage provides an opportunity to fully master professional experience and develop the ability to think innovatively. This methodology was developed based on the requirements of the active use of modern technological resources. It not only helps to deeply study the material, but also develops in students the skills necessary for future learning.

The main principle of applying the methodology in practice is individual work with each student, taking into account his personal interests, level of preparation and abilities. This depends on the accuracy of the educational process, the ability to adapt educational materials and tasks to each requirement [4].

The introduction of this methodology into the educational process requires teachers not only in-depth knowledge of technical and technological disciplines, but also a thorough study of modern pedagogical technologies and teaching methods.

In addition, it is necessary to pay attention to the self-improvement of teachers in the educational process. This ensures the free dissemination, discussion and support of new information that helps to adapt to new technological trends. Technological education teachers, focused on the use of modern technological solutions in the educational process, supported methodological achievements, became an important part of the practical work. The criticality of the educational regime with traditional means, digital tools - models for working with children and using computer modeling, allows students to apply their knowledge in school practice.

Thus, the integration of technical and technological disciplines into the undergraduate educational process, that is, the modernization of educational programs that require the use of innovative technologies to adapt curricula to modern requirements and achieve the quality and results of the educational process.

In the future, from the perspective of discussing the effectiveness of teaching methods aimed at increasing the technical and technological competence of teachers of

technological education, it is necessary to determine the criteria that indicate that they can sufficiently increase the level of students' qualification, as well as the means of discussing whether they can ensure the objectivity and reliability of the results obtained [4].

Use of high-quality resources for the development of technical and technological competence, including tests, portfolio discussions, design of studies and research, including the use of modern digital technologies in daily work, which allow monitoring the learning process and the obsolescence of requirements.

In developing the technical and technological competence of teachers of technological education for children, it is necessary to pay attention to cooperation between educational institutions and industrial enterprises. This partnership is of great importance in ensuring the relevance of educational traditions and ensuring the adaptability of students to market demands. One of the main goals of the partnership is to establish additional educational traditions that involve students in conducting internships and practical training, participating in training courses and their peers in the implementation of their tasks, while also ensuring the use of modern techniques and technologies. Such participation not only deepens the ability of students to apply theoretical knowledge in practice, but also allows them to master the practices necessary to improve their professional skills.

Scientific research that encourages the renewal and dissemination of educational traditions, their adaptation to the changing requirements of the market and technological development, as well as the establishment of an exchange of knowledge and experience between representatives of the industry are also important areas of cooperation. Factories, in their newspaper, showed that they have the ability to influence the process of training specialists, which has become an important factor in their competitiveness and innovative development.

Establishing the necessary partnerships between educational institutions and industrial enterprises involves organizing scientific events, organizing professional forums and conferences, including establishing mechanisms for providing educational institutions with financial and material and technical support. However, despite the advantages of such partnerships, there are a number of disadvantages, such as the difference between educational institutions and industrial enterprises, management and bureaucratic obstacles, as well as insufficient financial resources to implement partnerships. To overcome such problems, it is necessary to study communication mechanisms, establish management, procedures and attract funds.

Conclusion and suggestions

Thus, cooperation between educational institutions and innovative companies is of great importance in developing the technical and technological competencies of teachers, ensuring the relevance and practical orientation of educational traditions in the modern technological world, improving the

professional skills of students and increasing the effectiveness of their professional training.

In general, it opens up new directions for integrating the standards of developed countries in technical and technological competence education, which increases the quality of teacher training for technological education. This does not affect the educational process, but helps students to communicate freely, interact with each other, and be ready to participate in international organizations.

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