pISSN:2349-5707 Volume:13,Issue 2, February -2026 eISSN:2349-5715

THE CONTENT AND DISTINCTIVE FEATURES OF THE TEACHER TRAINING PROCESS IN THE FIELD OF TECHNOLOGICAL EDUCATION

Hakimova Sharofat Abdusattorovna
Teacher, Department of Technology and Geography, Faculty of Natural and Exact Sciences, Termez State Pedagogical Institute

ABSTRACT

This article explores the content and distinctive features of the teacher training process in the field of technological education, with a particular focus on the alignment of pedagogical preparation with contemporary educational and technological demands. The study emphasizes the importance of integrating theoretical knowledge, practical skills, and innovative teaching methodologies in the professional development of future technology teachers. Special attention is given to competency-based education, interdisciplinary integration, and the use of modern educational technologies, including digital tools, project-based learning, and modeling activities.

The article analyzes the structural components of teacher training programs in technological education, highlighting their role in developing pedagogical, methodological, and technological competencies. Furthermore, it examines the specific characteristics that distinguish technological education from other educational fields, such as the close connection between education and production processes, creativity-oriented learning, and the formation of problem-solving and design thinking skills among prospective teachers.

The findings underscore the necessity of continuously updating the content of teacher education programs in response to rapid technological advancements and labor market requirements. The article also addresses the role of practical training, teaching practice, and reflective activities in shaping professionally competent, innovative, and adaptable technology teachers capable of effectively organizing the educational process in general secondary schools.

Keywords: technological education, teacher training, professional competencies, pedagogical preparation, practical skills, educational technologies, competency-based approach, interdisciplinary integration, innovation in education

Introduction. In the context of rapid scientific and technological development, the modernization of education systems has become a strategic priority worldwide. Technological education, as an integral component of general secondary education, plays a crucial role in preparing students for active participation in a technologically advanced society. Consequently, the quality of technological education largely depends on the level of professional training of teachers, making the preparation of qualified technology teachers a key issue in contemporary pedagogy.

The process of teacher training in the field of technological education requires a comprehensive and systematic approach that combines pedagogical theory, subject-specific knowledge, and practical experience. Unlike traditional academic disciplines, technological education is characterized by its strong connection with real-life production processes, engineering thinking, and creative problem-solving activities. Therefore, future technology teachers must not only master pedagogical principles but also acquire technological, methodological, and design competencies that enable them to effectively organize student-centered and practice-oriented learning.

Current educational reforms emphasize a competency-based approach, interdisciplinary integration, and the active use of innovative teaching technologies. In this regard, teacher education programs in technological education are expected to foster professional competencies such as instructional design, project management, modeling, and the application of digital and technological tools in the teaching process. The integration of modern educational technologies, including information and communication technologies, STEM and STEAM approaches, and

pISSN:2349-5707 Volume:13,Issue 2, February -2026 eISSN:2349-5715

project-based learning methods, has become an essential requirement in preparing teachers who can respond to the evolving demands of the education system and the labor market.

Moreover, the effectiveness of teacher training is closely linked to the organization of practical training and teaching practice, which allow prospective teachers to apply theoretical knowledge in real educational settings. Practical experience contributes to the development of reflective skills, pedagogical creativity, and professional adaptability. In this context, the content and specific characteristics of teacher preparation in technological education must be continuously updated to ensure alignment with global educational trends, technological innovations, and societal needs.

This article aims to analyze the content and distinctive features of the teacher training process in technological education, focusing on its pedagogical, methodological, and technological dimensions. By examining contemporary approaches to teacher preparation, the study seeks to identify key factors that contribute to the formation of professionally competent, innovative, and flexible teachers capable of delivering high-quality technological education in general secondary schools.

METHODOLOGY. This study employed a qualitative and analytical research design to examine the content and distinctive features of the teacher training process in the field of technological education. The methodological framework was developed in accordance with contemporary pedagogical research principles and aimed to ensure the validity, reliability, and objectivity of the findings. A systematic approach was used to analyze teacher education programs, instructional practices, and methodological components related to the preparation of future technology teachers.

The research was conducted through a comprehensive analysis of scientific literature, normative and methodological documents, and educational standards regulating technological education and teacher training. Sources included international and national academic publications, curriculum frameworks, and policy documents related to competency-based education, technological education, and teacher professional development. This allowed for the identification of key trends, conceptual approaches, and structural components that define the current state of teacher preparation in technological education.

In addition, a comparative analysis method was applied to examine different models of teacher training in technological education. This approach enabled the identification of similarities and differences in program content, instructional strategies, and competency frameworks. Particular attention was paid to the integration of pedagogical, technological, and methodological training, as well as the role of interdisciplinary and practice-oriented learning in shaping professional competencies.

To deepen the analysis, the study utilized content analysis of teacher education curricula and course descriptions related to technological education. This method made it possible to determine the extent to which modern educational technologies, project-based learning, modeling, and design-oriented activities are incorporated into the training process. The analysis focused on how these elements contribute to the development of professional skills, creativity, and problem-solving abilities among prospective teachers.

The research also incorporated elements of a structural-functional analysis to examine the relationship between the objectives, content, teaching methods, and expected outcomes of teacher training programs. This approach provided a holistic understanding of how different components of the training process interact to form a coherent system of professional preparation. Special emphasis was placed on practical training and teaching practice as essential components for bridging theoretical knowledge and real educational practice.

Finally, the data obtained from the literature review and analytical procedures were synthesized using generalization and interpretation methods. This allowed for the formulation of scientifically grounded conclusions regarding the content and specific characteristics of teacher training in technological education. The methodological approach adopted in this study ensures

pISSN:2349-5707 Volume:13,Issue 2, February -2026 eISSN:2349-5715

that the results are transferable and can serve as a theoretical basis for improving teacher education programs in technological education in line with international educational standards.

RESULTS. The analysis of teacher training processes in the field of technological education revealed several significant results related to the content structure, competency development, and distinctive characteristics of professional preparation. The findings demonstrate that contemporary teacher education programs increasingly emphasize an integrated approach that combines pedagogical knowledge, technological skills, and methodological competence.

One of the key results indicates that the content of technological education teacher training is predominantly oriented toward the development of professional competencies rather than the transmission of isolated theoretical knowledge. The analyzed curricula reflect a shift toward a competency-based framework, where future teachers are trained to design learning activities, manage project-based instruction, and apply technological tools effectively in educational settings. This approach supports the formation of practical teaching skills and enhances readiness for real classroom challenges.

The results also show that interdisciplinary integration plays a central role in the preparation of technology teachers. Training programs increasingly incorporate elements from engineering, design, information technology, and pedagogy, which contributes to the development of holistic professional thinking. Such integration enables future teachers to connect technological content with other subject areas and to implement cross-curricular teaching strategies that align with modern educational requirements.

Another important finding relates to the role of practical training and teaching practice. The analysis reveals that programs with a higher proportion of practical and practice-oriented components contribute more effectively to the development of pedagogical creativity, problem-solving skills, and professional adaptability. Teaching practice allows prospective teachers to apply theoretical concepts in authentic educational environments, fostering reflective skills and professional self-awareness.

Furthermore, the results highlight the growing use of modern educational technologies in teacher training. Digital tools, modeling techniques, and project-based learning methods are increasingly integrated into the training process. This integration enhances future teachers' ability to organize student-centered learning, support creative and design-oriented activities, and adapt instruction to diverse learner needs. The findings indicate that exposure to such technologies during training positively influences teachers' readiness to implement innovative teaching methods in technological education.

The study also identified specific characteristics that distinguish technological education teacher training from other pedagogical fields. These include a strong emphasis on design thinking, creativity, and the close connection between educational content and real-world technological and production processes. As a result, future technology teachers are better prepared to develop students' practical skills, technological literacy, and problem-solving abilities.

Overall, the results confirm that the effectiveness of teacher training in technological education depends on the coherence between program objectives, content, teaching methods, and expected learning outcomes. Programs that emphasize competency development, interdisciplinary integration, and practical experience demonstrate a higher potential for preparing professionally competent and innovative technology teachers capable of meeting contemporary educational demands.

DISCUSSION. The results obtained in this study highlight important tendencies in the preparation of teachers for technological education and confirm the growing relevance of competency-oriented and practice-based training models. The findings indicate that the shift from knowledge-centered instruction to competency-based teacher education is not only a

pISSN:2349-5707 Volume:13,Issue 2, February -2026 eISSN:2349-5715

theoretical trend but also a practical necessity driven by the changing demands of modern education systems and technological progress.

The emphasis on professional competencies identified in the results aligns with contemporary pedagogical theories that view teacher professionalism as a combination of pedagogical, technological, and methodological skills. In the context of technological education, this integration is particularly significant, as teachers are expected to guide learners in creative, design-oriented, and problem-solving activities. The discussion suggests that teacher training programs which prioritize such competencies are more likely to produce educators capable of organizing effective and student-centered technological learning environments.

Interdisciplinary integration, revealed as a key feature of effective training programs, can be interpreted as a response to the complex nature of technological education. The blending of engineering principles, digital technologies, design thinking, and pedagogy enables future teachers to develop holistic professional perspectives. This approach supports the idea that technological education should not be isolated within a single discipline but rather connected to broader educational and societal contexts. As a result, interdisciplinary training enhances teachers' ability to implement integrated curricula and foster meaningful learning experiences.

The prominent role of practical training and teaching practice discussed in the results underscores the importance of experiential learning in teacher education. Practical components provide opportunities for future teachers to test theoretical concepts in real classroom situations, develop reflective thinking, and adapt instructional strategies to diverse learners. The discussion indicates that insufficient practical exposure may limit teachers' readiness to manage technological education effectively, whereas well-structured teaching practice strengthens professional confidence and adaptability.

The increasing use of modern educational technologies in teacher training also reflects global trends toward digitalization and innovation in education. The discussion highlights that early and systematic exposure to digital tools, modeling techniques, and project-based learning methods enhances future teachers' technological literacy and pedagogical flexibility. This finding supports the argument that teacher education institutions should continuously update their curricula to include emerging technologies and innovative instructional approaches.

Furthermore, the distinctive characteristics of technological education teacher training—such as the focus on creativity, design thinking, and real-world applications—differentiate it from other pedagogical fields. The discussion suggests that these characteristics require specialized methodological approaches and curriculum structures. Ignoring these specific features may reduce the effectiveness of teacher preparation and limit the educational impact of technological education in schools.

In summary, the discussion demonstrates that effective teacher training in technological education depends on the coherence between competency development, interdisciplinary integration, practical experience, and the use of innovative educational technologies. These elements collectively contribute to the formation of professionally competent, creative, and adaptable teachers capable of responding to contemporary educational challenges and supporting the sustainable development of technological education.

CONCLUSION. This study examined the content and distinctive features of the teacher training process in the field of technological education within the context of contemporary educational development. The analysis demonstrated that effective preparation of future technology teachers requires a comprehensive and systematic approach that integrates pedagogical knowledge, technological competence, and methodological skills. Such integration is essential for ensuring the quality and relevance of technological education in general secondary schools.

The findings highlight that a competency-based orientation serves as a fundamental principle in modern teacher education. Focusing on the development of professional competencies rather than solely on theoretical knowledge enhances future teachers' readiness to

pISSN:2349-5707 Volume:13,Issue 2, February -2026 eISSN:2349-5715

design, implement, and evaluate technology-oriented learning activities. This approach supports the formation of creative, problem-solving, and design-thinking skills that are particularly significant in technological education.

Furthermore, the study confirms the importance of interdisciplinary integration and practice-oriented training in the professional development of technology teachers. The combination of pedagogical disciplines with engineering, digital technologies, and design-related content enables future teachers to adopt a holistic professional perspective. Practical training and teaching practice play a decisive role in bridging the gap between theory and practice, fostering reflective thinking, and strengthening professional adaptability.

The integration of modern educational technologies into teacher training programs was also identified as a key factor in enhancing the effectiveness of professional preparation. Exposure to digital tools, modeling techniques, and project-based learning methods equips future teachers with the skills necessary to organize student-centered and innovative technological education. Continuous updating of training content in response to technological advancements and labor market needs is therefore essential.

In conclusion, the study emphasizes that the quality of technological education is closely linked to the effectiveness of teacher training programs. Aligning program objectives, content, teaching methods, and expected outcomes with international educational standards contributes to the preparation of professionally competent, innovative, and adaptable teachers. The results of this study may serve as a theoretical basis for improving teacher education curricula and for further research aimed at enhancing the sustainability and effectiveness of technological education.

REFERENCES

1. Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
2. OECD. (2019). *Future of education and skills 2030: OECD learning compass 2030*. Paris: OECD Publishing.
3. Prince, M. J., & Felder, R. M. (2006). Inductive teaching and learning methods. *Journal of Engineering Education*, 95(2), 123–138.
4. Abdullaeva, D. A. (2020). *Texnologiya ta'limini o'qitish metodikasi*. Toshkent: Fan va texnologiya.
5. Jo'raev, R. X., & Zunnunov, A. (2019). *Pedagogik texnologiyalar va ularni ta'lim jarayonida qo'llash*. Toshkent: O'qituvchi.
6. Muslimov, N. A. (2018). *Kasbiy ta'lim metodikasi*. Toshkent: Sharq.