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Professional Training of Masters of Technological Education in Pedagogical Higher Education Institute

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Abstract: The transition of higher pedagogical school to a continuous education system involves updating the content, forms and methods of professional training of masters as specialists of the highest qualification level, who in the future will join scientists from various fields of science and teaching staff of universities, colleges, gymnasiums, lyceums and more. The purpose - on the basis of the integral scientific analysis to develop theoretical and methodical bases of research, to substantiate and experimentally check pedagogical system of professional training of masters of technological education. In the course of the research a complex of pedagogical conditions of professional training of future teachers of technological education in the process of master's degree is singled out. 531 undergraduates of experimental and control groups took part in the experiment, 266 of them were involved in the formative stage. The results of experimental data were processed according to the methods of Arkhangelsky (1980) (determination of a sufficient representative sample of students), Kyveryalg (1980) (determination of arithmetic mean, variance), Novikov (2005) (verification of the probability of the obtained results), which made it possible compare the indicators of the formation of levels of professional and pedagogical competence of masters of technological education before and after the experiment. As a result of experimental work, undergraduates of the experimental group showed higher levels of professional and pedagogical competence than in the control. The results of the experiment showed that the effectiveness of the author's pedagogical system of vocational training for masters of technological education is sufficient, and the general strategy of the proposed pedagogical system of vocational training is innovative, expedient and deserving widespread implementation in higher pedagogical educational institutions that train future teachers in the specialty "Technological education".

Keywords: *pedagogical system, pedagogical conditions, master's degree training, pedagogical competence, career guidance work, technology training.*

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Introduction

Modern socio-economic conditions, features of state development, characterized by the transition of society to new equipment and technologies, the growth of knowledge about the transformation of materials, energy and information in the interests of man pose new educational tasks, which should ensure the formation of competent professional and cultural in relation to the individual capable of living in a technological society, to be competitive in Europe and the world.

The transition of higher pedagogical school to a continuous degree system of education involves updating the content, forms and methods of professional training of masters as specialists of the highest qualification level, who in the future will join scientists from various fields and teaching staff of universities, colleges, gymnasiums, lyceums, etc.

The fundamental foundations of updating the system of higher education, professional training of higher school teachers, theoretical and methodological principles of professionalism, professional culture, professional skills and professional competence of teachers are revealed in the works by Andrushchenko (2012), Lozova et al. (1993), Sysoyeva and Sokolova (2010) and many others.

In the scientific and scientific-methodical literature a significant place is given to psychological and pedagogical components as the main component of teacher's professional competence (Gerasymova et al., 2019; Kuzmina, 1990; Maksymchuk, Gurevych et al., 2020; Maksymchuk, Matviichuk et al., 2020; Melnyk et al., 2019; Nerubasska & Maksymchuk, 2020; Nerubasska et al., 2020; Onishchuk et al., 2020; Palamarchuk et al., 2020; Sheremet et al., 2019) since they provide the ability of the specialist to personal and professional self-development, self-improvement, determine his acmeological culture.

In recent years, the concept of university pedagogical education has been actively developed by Aleksyuk (1998) and Pashchenko (2012). The methodology and history of pedagogical education in Ukraine and abroad are studied by Bezlyudny (2012) and Biletska (2014).

The problem of personality competence in psychological and pedagogical science is reflected in solving a wide range of theoretical and applied issues aimed mainly at the study of professional development, development and self-improvement of the individual as a subject of professional activity (Kuzmina, 1990).

Under such conditions, the relevance of professional training of masters in the field of knowledge "Education" is of particular importance,

because it is a person who has not only a system of special knowledge and professional actions, but also characterized by the formation of professionally important competencies, appropriate level of qualifications. quality while maintaining national achievements and priorities, as well as capable of effective teaching in modern conditions.

Significant theoretical and practical interest for the study of this problem are works that highlight the features of training of specialists in technological education (Tereshchuk, 2005; Tkachuk, 2013) and emphasize that the problem of training masters of technological education is important and emerges. one of the most important tasks of the theory and methods of teaching technology.

In the late 20th century, research on the development of technology education teachers covered two specific elements of socialization. They are due to the fact that both technological and pedagogical fields are based on different sciences, fields of activity and, accordingly, different prejudices and stereotypes. Analyzing factors at the University of Western Ontario (UWO), Hansen (1995) used these elements as a basis for studying the psychology of technology education teachers. In particular, the first element of socialization is a personal correction at the initial stage of teacher training. It is transformational and, therefore, lies in overcoming some prejudices, both positive and negative, by teacher students. The second one is "the element of professional socialization, which involves the adaptation of teachers in an international context, i.e., the adaptation to the culture of the profession" (Hansen, 1995). Both aspects seem important for this study since in Ukraine it is traditional to train researchers and teachers within master's degree programmes. Importantly, teachers must learn to combine teaching with technological areas of research.

Hansen, & Froelich (1994) raise an equally important differential topic of distinguishing between technology and technology education. They review the references on the issue in question, participate in a two-year project of technology education teachers, attempt to identify "historical, social, cultural and philosophical dimensions of technology" and distinguish between technology as a pedagogical method and technology as the subject of the main study.

Earlier it was possible to apply transferred knowledge of technology throughout life. Current goals of technology education are different since they mostly mean "ways of obtaining knowledge and rules of operation" (Shishov & Kalnei, 2017). Technology education should aim to do the following: a) to nurture a reflective worldview and individualism; b) to prepare technicians and engineers for various possible industrial and social

events; c) to enable rationality and understanding of changes in the nature of information; d) to provide access to new data, social and cultural ideas in the interpretation of information and dissemination of knowledge; e) to teach specialists to work with conflicting information and develop skills in analyzing and synthesizing the facts on which the information is based (Shishov & Kalnei, 2017).

Much attention is now paid to the links between technology and the environment. The latter is understood as a changing context determined by needs, resources and activities. In this regard, the educational technological space is viewed as part of the whole. The educational technological environment is determined by informational, managerial, consumer and other technologies that modify the content and forms (technologies) of education (Dillon, 1993).

It must be noted that the sustainability of technological innovations in colleges was studied by Lawrenz et al. (2003). They found that technological innovations are "supported by sharing power with partners, by developing flexible programmes that respond to a changing labour market that stimulates professional development, and by using software data for marketing" (Lawrenz et al., 2003).

In Europe, there are currently advanced technology education (ATE) programmes, which are models of business-education collaboration to jointly develop technical degree programmes to train more and better technicians (Zinser & Lawrenz, 2004). A positive feature of such programmes is the wide discussion and joint improvement of qualification standards in technology education.

The personal contribution of the authors of the article to the novelty of the topic in question lies in critical analysis of the scientific literature. It shows that the problem of holistic and systematic study of professional training of masters of technological education in higher pedagogical institutions of the IV level of accreditation has not become the subject of a separate study yet.

The international value of the article lies in generalizing the processes of reforming vocational education, the development of theory and practice of master's training, scientific sources and pedagogical practice of professional training of masters of technological education. The relevance of the above-mentioned research subject has shown a number of contradictions that require rapid resolution, including:

- social needs for high-quality professional training of future teachers in higher pedagogical educational institutions that are competitive in the labor market, and the current state of professional training of masters of

technological education, an insufficient level of formation of their professional and pedagogical competence;

- increased requirements to the level of formation of professional and pedagogical competence of future teachers of technological education and insufficient development of the regulatory framework for their training, the lack of appropriate master's educational and professional program in the system of higher pedagogical education of Ukraine;

- approval of the competence approach in the professional training of future specialists and the traditional system of professional training of masters of technological education, which causes an insufficient level of formation of masters of professional and pedagogical competence;

- the needs of pedagogical science and practice taking into account the foreign experience of professional training of masters in the field of engineering and technology in accordance with the requirements of the Bologna process and its insufficient study and generalization in domestic higher pedagogical educational institutions;

- the need for scientific substantiation of the pedagogical system of professional training of masters of technological education and insufficient development of theoretical and methodological principles of its design, the lack of scientifically sound didactic and methodological bases for organizing the training of these specialists in the master's program.

The urgency of this problem, its important theoretical and practical significance for higher pedagogical and technological education, the existing contradictions and led to the choice of research topic.

The purpose - on the basis of the integral scientific analysis to develop theoretical and methodical bases of research, to substantiate and experimentally check pedagogical system of professional training of masters of technological education in higher pedagogical educational institutions.

Materials & methods

The process of training specialists at the educational level "Master" in the specialty 8.01010301 "Technological Education" is considered as a pedagogical system consisting of a set of interconnected components (design of educational material, organizational forms and teaching aids, teaching methods and technologies, scientific -research, independent, individual and practical activities, etc.) and reflects the integrity of professional training, which is aimed at forming the professional and pedagogical competence of the future teacher of general technical disciplines and methods of teaching technology.

An important component of the pedagogical system of professional

training of masters of technological education is the design of its content. The study formulates general requirements for pedagogical design of the content of training of future teachers of general technical disciplines and methods of teaching technology: when designing the content of training it is necessary to take into account both general principles of construction of educational content and general didactic principles and principles of updating training; pedagogical design of the content of training should reveal features and directions of professional activity of the teacher in system of innovative development of higher educational institution; the specifics of professional and pedagogical training for this type of activity in the educational environment of higher education; the content of training of future teachers should correspond to the purposes of the chosen model of education, to reflect modern tendencies of scientific and technical development of the state, the basic directions of innovative processes in technological education, features of educational innovations and pedagogical technologies in higher school; the content component in pedagogical design should reflect the experience of applying the acquired knowledge in practice for the introduction of new educational and scientific and technical technologies; when structuring the content of training it is necessary to provide for the development of innovative engineering and pedagogical style of thinking, to ensure personal and professional self-development of the future teacher.

An equally important component of the pedagogical system of professional training of masters of technological education is the choice of forms of organization and methods, means and technologies of higher education, which is determined by the tasks of professional training of masters of technological education, features of the subject and its level of training of undergraduates, and a skillful combination of different forms, tools, methods and technologies of education allows them to comprehensively solve problems of educational, educational and scientific work, firmly and consciously acquire knowledge, master the basics of pedagogical skills. Therefore, the process of professional training is implemented through the use of the following organizational forms: classroom (lectures, review, advisory, problem, lecture-visualization, binary lecture, lecture-conference, lecture-provocation, lecture-dialogue, lecture-duet, etc.), laboratory-practical classes (frontal and tutorials), seminars (seminar-conversation, seminar-hearing, seminar-dispute, seminar-press conference, etc.) and extracurricular (conferences, consultations, tests, exams, scientific circles, etc.).

An important component of the pedagogical system of vocational

training of masters of technological education is teaching aids that characterize the level of a higher educational institution - these are information and visual aids (educational literature, information materials, software and methodological support, didactic materials, etc.), educational equipment (objects, are used by the teacher and students during training as carriers of educational information) and the activities of the participants in the educational process (the student's personal qualities, the teacher's professional activity and his communication).

The next component of the pedagogical system are teaching methods, which should be understood as a system of methods, techniques, consistent actions of teachers and students in the classroom, aimed at achieving educational goals and objectives, ie mastering knowledge, skills, abilities and personal qualities. Important in the professional training of the master of technological education is a group of problem-solving methods - effective (problem solving, graphing); heuristic (conversation, discussion, discussion); search (course design); research (scientific work, final qualifying work); methods of problem presentation of educational material; intellectual collective activity (discussions, debates, competitions, brainstorming method, case method, training, etc.).

From the analysis of scientific sources and their own pedagogical experience, it has been established that the variety of forms of research work of masters allows to realize the scientific interests of each student, and participation in it is necessary for the most harmonious, thorough education and research experience, which is an important factor in the preparation of a young specialist and scientist and entry into professional and mobile skills: the ability to analyze and organize information, concentrate attention, enrich your own stock of knowledge, carry out a versatile search for a solution to a problem, be able to work purposefully and thoughtfully, etc.

Among the main factors that determine the effectiveness of the organization of research activities of masters of technological education, we highlight: personality-oriented approach to its implementation; focus on productive end result; problem-based learning as a tool for the development of creative experience; optimal combination of logical and heuristic methods of problem solving; creative organization of the educational process, the maximum filling of its creative situations; creating a situation of joint research activities of the supervisor and undergraduate; successful choice of scientific problem; creating a comfortable psychological atmosphere, optimal conditions for creative activity.

In the process of training a specialist in technological education in higher education, the following leading types of research work are identified:

research work, which is provided by the educational-professional training program (study of methodology and methods of scientific research, scientific organization of independent work; scientific organization of work of a technology teacher; acquisition of skills and abilities to work with scientific and technical literature and use library funds; involvement of students in the elements of research in practical, seminar and laboratory classes; preparation of scientific individual educational and research tasks, followed by their discussion in student groups; inclusion of elements of scientific research in home and individual tasks; application of a creative approach by students in the performance of final qualifying works, etc.) and research work carried out outside the requirements of the educational and professional program in research laboratories, centers, in the implementation of state budget topics (subject research and problem groups; design offices; scientific and practical conferences, competitions of creative works, Olympiads, etc.).

Independent work of students as an organizational form of the educational process is carried out by undergraduate students under the guidance of the teacher in classroom and extracurricular time and includes: independent work during the classroom with the direct participation of the teacher and preparation for classroom classes (lectures, laboratory, practical, seminar classes, etc.); extracurricular independent work of the student without direct participation of the teacher, but at its coordination (individual, creatively oriented, asynchronous independent work).

It is established that the effectiveness of independent work in the conditions of master's degree increases if: the role of independent activity of master's students during classroom classes is strengthened; provided positive motivation for independent work; the institution has created a functional environment for distance learning "Moodle", there is a systematic guidance, assistance and constant monitoring by the teacher; clearly planned individual work of students; there is a relationship between the content of independent work with the formation of undergraduate students' competencies and methods of assessment, as they increase responsibility for the quality of work performed, which contributes to the professional development of the teacher's personality.

Practice in a master's degree is an organizational component of an integral pedagogical system of professional training of a teacher of general technical disciplines and methods of teaching technologies, providing for the consolidation and deepening of the theoretical psychological, pedagogical and general technical knowledge, the development of scientific and methodological skills and the mastery of professional and personal qualities in the conditions of the scientific and educational environment , as close as

possible to future professional activity, and is aimed at self-development and self-realization of the future scientific and pedagogical worker. The result of assistant practice is the formation and development of undergraduates' readiness to implement the functions of professional activity: educational, developmental, educational, organizational, communicative, research, constructive, etc., the acquisition of skills necessary for effective scientific and pedagogical activity - gnostic, design, constructive , communicative, organizational, etc.

Experimental work, which aimed to form the professional and pedagogical competence of students of educational level "master", was conducted during 2015-2020 on the basis of Pavlo Tychyna Uman State Pedagogical University, Vinnytsia Mykhailo Kotsiubynskyi State Pedagogical University, Lesya Ukrainka Eastern European National University, T.H. Shevchenko National University "Chernihiv Colehium", Volodymyr Vynnychenko Central Ukrainian State Pedagogical University Kropyvnytskyi, Volodymyr Vynnychenko Central Ukrainian State Pedagogical University. The experiment involved 531 undergraduates of experimental and control groups, of which 266 people were involved in the formative stage. The participants were selected based on geographical (representing different regions of Ukraine), thematic (pedagogy) and qualification-related (undergraduate) factors.

It must be noted that the study adhered to relevant ethical rules. All ethical requirements were considered prior to it. Next, the authors of the article obtained the consent of the ethics committees of educational institutions in which the study was conducted. After that, the participants were informed about the goals and objectives of the study. They were also informed that participation was voluntary, and they were entitled to refuse to participate in it at any time.

The purpose of the formative stage of the experiment was realized on the basis of: updating the content of academic disciplines included in the cycle of disciplines of professional and practical training ("Methods of teaching general technical disciplines", "Pedagogy of higher school", "Psychology of higher school", "Management in education", " Theory and practice of scientific and pedagogical research"); improving the practice program; introduction of educational disciplines "Scientific principles of the theory and methods of teaching technology", "Creative learning technologies" and ensuring the continuity of the process of formation of professional and pedagogical competence of masters of technological education. Thus, the academic discipline "Methods of teaching general technical disciplines", which is included in the special-subject training of the

Master of Technology Education, is represented by four semantic modules: 1. "Theoretical foundations of studying general technical disciplines"; 2. "Didactic bases of general technical training"; 3. "Methodological features of teaching general technical disciplines"; 4. "Methodological aspects of teaching general technical disciplines". The developed and implemented discipline "Scientific principles of theory and methods of teaching technology" involved the study of two content modules: 1. "General issues of teaching the course" Theory and methods of teaching technology ", 2." Methods of studying the course ". The discipline "Creative technologies in universities" is represented by two content modules: 1. "General concepts of creative educational activities"; 2. "Characteristics of creative technologies".

Problem-based and integrated lectures were widely introduced into the practice of master's training. In particular, an integrated lecture-duet on the topic: "Organization of research work of the future teacher of general technical disciplines" (course "Methods of teaching general technical disciplines"); lecture-consultation on the topic "Directions and methods of improving the educational process in higher education" (course "Methods of teaching general technical disciplines"); lecture-press conference on "Domestic methods of teaching technology in the context of the development of the Soviet system of labor training of students" from the course "Scientific principles of theory and methods of teaching technology" was conducted by two teachers - specialists in general disciplines and experimental theory. During the master's students' assistantship practice elements of educational and research activity were introduced in the form of tasks: to develop and read in the group a mini-lecture on difficult to master topics in the disciplines of technical-technological and psychological-pedagogical direction; to develop test and other means of control of knowledge from professional disciplines for the further approbation at employment on the corresponding discipline; to solve creative design and technological problems on individual tasks; prepare a report or speech for a seminar, conference. In the process of practical training such teaching methods were widely used as: micro-teaching, micro-analysis, self-programming, self-preparation and design method and case method, in particular in the discipline "Methods of teaching general technical disciplines".

The results of experimental data were processed according to the methods of Arkhangelsky (1980) (determination of sufficient representative sample of students), Kyveryalg (1980) (determination of arithmetic mean, variance), Novikov (2005) (verification of the probability of the obtained results), which made it possible to compare indicators of professional and

pedagogical levels. competencies of masters of technological education before and after the experiment. The reliability and validity of the results of experimental work were tested according to Pearson's method: determination of the arithmetic mean, testing of null and alternative hypotheses using the criterion ($\chi 2$).

Results

The dynamics of the levels of formation of professional and pedagogical competence of masters of technological education in higher pedagogical educational institutions are presented in Table 1.

Table 1. *Dynamics of levels of formation of professional and pedagogical competence of masters of technological education (in%).*

Levels of professional and pedagogical competence	EG		Dynamics	CG		Dynamics
	Statement stage	Forming stage		Statement stage	Forming stage	
High	12,5 %	34,7 %	+22,2 %	12,5 %	23,1 %	+10,6 %
Medium	31 %	50,8 %	+19,8 %	30,8 %	43,7 %	+12,9 %
Low	42,1 %	14,5 %	- 27,6 %	42,3 %	33,2 %	- 9,1 %

Source: Authors' own conception

According to the data in the table, as a result of experimental work, undergraduates of the experimental group showed higher levels of professional and pedagogical competence than in the control.

Thus, during the examination at the constitutive stage, the high level was 12.5%, at the molding stage - 34.7%, the dynamics is + 22.2%. The average level according to the results of the ascertaining stage was 31.0%, according to the results of the forming stage it was 50.8%, which is 19.8% more. Accordingly, undergraduates with a low level of formation of professional and pedagogical competence decreased from 42.1% to 14.5%, which is -27.6%. In the control group, the level of professional and pedagogical competence also increased, but compared with the experimental group, it increased less.

Comparative characteristics of the results of the experiment allow us to assert that as a result of the experimental work, which provided for the introduction of a grounded pedagogical system, the master students of the

experimental group turned out to have higher indicators of the level of formation of professional and pedagogical competence. If the formation of the professional and pedagogical competence of master students in the control groups changed with a slight deviation, then in the experimental groups its level is significantly ahead.

Thus, the results of the experiment showed that the effectiveness of the author's pedagogical system of professional training of masters of technological education is sufficient, and the general strategy of the proposed pedagogical system of vocational training is innovative, expedient and deserving widespread implementation in higher pedagogical educational institutions that train future teachers in the specialty "Technological education".

Discussion

The scientific novelty of the obtained research results is that:

–*for the first time* the theoretical-methodical and conceptual bases of professional training of masters of technological education in higher pedagogical educational institutions are scientifically substantiated, including designing of strategy of professional training of future teachers of general technical disciplines and methods of teaching technologies, its tasks, content, functions and basic principles; the essence and structure of the phenomenon "professional and pedagogical competence of the master of technological education" are determined (integrated professional and personal characteristics with a set of knowledge, skills, abilities, attitudes in the production and pedagogical sphere, the level of formation of which indicates the readiness of the master to implement professional functions and tasks); identified components (cognitive-creative, motivational-value, activity-practical), indicators and levels (high, medium, low) of its formation; revealed the specifics of the professional activity of a teacher of general technical disciplines and methods of teaching technology (consists in its multifunctionality, which is expressed through organically interconnected functions of pedagogical activity: -functions-aims, functions-tools and functions-techniques; multifaceted, which includes components: epistemological, constructive, prognostic, organizational and communicative); The peculiarities of professional training of masters of technological education in higher pedagogical educational institutions in the context of the competency approach are clarified (the content of education of masters of technological education is aimed at from the subject and semester of study: social, multicultural, informational, communicative,

managerial, didactic, psychological, autonomization, technical and technological, reflexive, project, methodological, productive, research and search) a model of professional training of teachers of general technical disciplines and methods of teaching technologies in higher pedagogical educational institutions has been developed, covers project and methodological, target, personal, infrastructural content, conditionally, technologically procedural, monitoring blocks; a well-grounded pedagogical system of professional training for a master of technological education, the structural components of which are the content of training, a set of means, forms, methods and technologies of teaching, research, independent, individual, practical activities of future teachers; the complex of pedagogical conditions (organizational-pedagogical and psychological-pedagogical) of professional training of teachers of general technical disciplines and methods of teaching technologies in higher pedagogical educational institutions of the IV level of accreditation are highlighted; summarized the experience of professional training of masters of technological education in national and foreign higher educational institutions;

–*clarified* the concept of "professional training of teachers of general technical disciplines and methods of teaching technology" (scientifically sound system of subject-subject interaction of participants in the pedagogical process in higher education, which is based on modern educational paradigms, concepts and approaches to form their readiness for quality future professional and pedagogical activities through the integration of knowledge of technical-technological, methodological and psychological-pedagogical sciences, which will enable them to respond flexibly, mobile to changes in social, economic and man-made life of society, effective business communication, self-improvement throughout life); the selection and structuring of the content of professional training of the master of technological education is improved;

–*forms and means, methods and technologies* of professional training of masters of technological education were further developed.

The practical significance of the study lies in the development and implementation of diagnostic tools to determine the level of formation of professional and pedagogical competence of masters of technological education; software and methodological support for the training of masters of technological education in higher pedagogical educational institutions of the IV level of accreditation (educational and professional program, curriculum, curricula of disciplines "Methods of teaching general technical disciplines", "Scientific principles of theory and methods of teaching technology", "Creative learning technologies in higher education", programs

of pedagogical practice of masters of technological education, guidelines for final qualifications, laboratory and practical classes, etc.). Educational and methodical manuals ("Professional training of teachers of general technical disciplines: theoretical aspect", "Scientific bases of the theory and methods of training of technologies") will be useful to teachers and masters of technological education of higher pedagogical educational institutions.

The main factors and results of the study can be used to develop standards for professional training of masters of technological education, programs of theoretical and practical training, organizational and methodological support of the educational process in the master's program of higher pedagogical educational institutions.

The study does not cover all aspects of the problem. We see the prospect of further research in the development of industry standards, research of psychological and pedagogical component of the content of professional training of masters of technological education, substantiation of modern concepts of technological education in the context of competence-oriented approaches, disclosure of modern creative technologies; determining the optimal educational and methodological support for professional training of masters.

Conclusions

The study identified a set of pedagogical conditions for professional training of future teachers of technological education in the process of master's degree: organizational and pedagogical (organization of career guidance work to select talented students to study for a master's degree; availability of educational and methodological support and bases of internships in the process of professional training of the master of technological education, determination of the optimal number and volume of content of educational, educational-research and practical tasks in the process of professional training; comprehensive consideration of the leading principles of professional training of teachers of general technical disciplines and methods of teaching technology) and psychological and pedagogical (formation of motivation for the development of personal creative and intellectual potential in undergraduates of technological education; creation of a favorable educational and scientific environment laboratories, centers during the implementation of state budget projects, etc.; the focus of professional and pedagogical training on the acquisition of competencies by future teachers of technological education; extensive use of modern pedagogical and information and communication technologies in the process of theoretical and practical components of professional training of the

master of technological education; approximation of professional training of a teacher of general technical disciplines and methods of teaching technologies to future professional activity; ensuring the unity of content and procedural aspects of master's studies; providing independent and individual work in the process of preparing a master of technological education).

The pedagogical system of professional training of masters of technological education is substantiated, which is considered as a set of interconnected components (designing the content of educational material, organizational forms and didactic teaching aids, teaching methods and technologies, research, independent, individual and practical activities, etc.) and reflects the integrity of professional training, which is aimed at forming the professional and pedagogical competence of the future teacher of general technical disciplines and methods of teaching technology.

In the process of training masters of technological education, the content of academic disciplines included in the cycle of disciplines of professional and practical training ("Methods of teaching general technical disciplines", "Pedagogy of higher school", "Psychology of higher school", "Management in education", "Theory and practice" scientific and pedagogical research"); improved internship programs; introduced disciplines "Scientific principles of theory and methods of teaching technology", "Creative learning technologies in HEIs" with appropriate software and methodological support and implemented the continuity of the process of forming professional and pedagogical competence of masters of technological education.

Experimental verification of the effectiveness of the implemented author's pedagogical system of professional training of future teachers in the specialty "Technological Education" showed that undergraduates of the experimental group showed a high level of professional and pedagogical competence by 22.2%, intermediate - by 19.8%. In the control group, changes in professional and pedagogical competence are insignificant, which proves that the effectiveness of this system is sufficient, its overall strategy is innovative, appropriate and deserves widespread implementation in higher pedagogical educational institutions.

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