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A conceptual model of the system of methodical training of future teachers for vocational training

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Abstract

The current system of methodological training that prepares future teachers to address a range of real-world issues ignores the actual nature of the methodological activity that has emerged in the classroom. A comprehensive and in-depth analysis of the methodical activity of the teacher shows that there are leading contradictions and uncertainties about the functional characteristics that make up the components of the system of methodological training of the future teacher in the process of his educational and extracurricular activities. In this regard, the purpose of the present research is to develop a system of methodological training for future teachers in relation to vocational training in the course of their academic and extracurricular activities and to characterize its structural components from a functional perspective. Theoretical analysis of innovative ideas for improving curriculum, programmes and other educational and methodological, normative documentation were used as research methods. Additionally, the experience of universities in developing and implementing experimental content was generalized and experimental work on the development and analysis of normative educational and methodological documentation was conducted. According to the results of the study, the system of methodological training for the future teacher with subject and meta-subject components was improved. The structural and functional model of the system of methodological training of the future teacher is presented and its effectiveness is experimentally proven.

Keywords: Conceptual model, Functional activity, General methodical disciplines, Methodical competence, Methodical preparation, Methodical system, Methodical training, Professional pedagogical disciplines, Subject-methodical training, Vocational education.

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1. Introduction

The analysis of results of scientific and pedagogical research in the field of professional and methodical preparation [1] shows that methodical preparation is an essential part of the training of the teacher having integrative property in relation to vocational training. In this respect, the system approach must be used to determine the structure of the methodical training of prospective teachers because the system approach is regarded as the basis for a system on which various forms of challenging objects and information is recognised as well as theoretical review.

It is initially important for the system to choose a concept before defining the term "system of methodical preparation." There are several definitions of the term "system" used in academic and scientific studies.

2. Review of Literature

Bespalko [2] describes a system as a collection of one-to-one linked elements of a single functional sheaf in which multiple components interact with one another and cooperate as dependent elements to form a single functional unit. One of the basic principles of system training is its structure. The method by which the structure interacts with concrete components is a representation of the uniform system's integrated organisation. Therefore, the main methodological management for the development of a system is its sequence and integrity.

- Integrity is described as the interfaced relationships between elements and the internal coordination of a system's components. It includes the following:
- The system has new and desirable characteristics as a result of internal interaction.
- All systems are integrated with the external environment and are defined by the general state of the environment.

The system of integrity is characterized by the existence of the following factors: all systems will have own structure which can be considered as the whole system of its separate components and also as a part of a larger system in general. We have examined several techniques of methodical preparation in order to develop a system of systematic training for prospective teachers [3-5]. In the first case, the emphasis is placed on the integration of various objects in the training program of a specialty. Among them, groups of methodical disciplines differ in feature. In the second case, the system of methodical preparation is considered the management of educational and methodical activities of a future teacher.

Zemtsova [6] and Belenok [7] consider the purposes, tasks, contents, means and results of methodical preparation separately Volodarskaya [8]; Grebnev [9] and Esme [10]. Derkachev [11] considers the process of the formation of methodical knowledge and ability in development of methodical training of future teacher. Other principle of system of methodical preparation is combination of the contents of educational process, the training purpose, the process of training and the results of training [12, 13].

3. Methodology and Data

According to our analysis of methodological and scientific research, methodical teacher preparation in pedagogical educational institutions is viewed as a multidisciplinary training system with the majority of the time using components of the pedagogical system's structure. However, the current system of methodical preparation for prospective educators ignores the actual nature of the methodical work that teachers must perform in order to complete a variety of practical tasks. It demonstrates the significant, growing importance of methodical activity in future experts' vocational training and the safety of a subject for organizing the content of future teachers' methodical training. The analysis of educational, methodical and standard documentation shows that there are leading contradictions and obvious uncertainty about the functional character making components of the system of methodical training of future teachers in the course of educational and extracurricular activities.

The methodological knowledge and skills of the future teacher will be formulated in the process of direct training. In accordance with the proposed model, it defines the basic principles underlying methodological training as determined by a set of disciplines based on the curriculum for training specialists. We define them as subject methodological training. They are characterized by a number of disciplines divided into three main groups namely:

1. All-professional pedagogical disciplines.
2. All-methodical disciplines.
3. Private methodical disciplines.

Studying these disciplines within the given conceptual model provides future teachers with the methodical preparation necessary to study aspects of students' identity development, basic didactic principles and how they relate, the nature of cross-disciplinary communications and how to realise them, techniques for professional knowledge formation and development, training systems and tutorial communication, content analysis of textbook and manual programmes, logical lesson structure analysis, training form and method selection, lesson system development, etc. The formation of systematic knowledge and talents that are necessary for becoming a teacher occurs solely through non-learning processes such as student teaching, research projects and creative work [13]. We call them meta-subject, methodical preparation which is carried out as a result of

1. Student teaching.
2. Research work.
3. Creative and independent work.

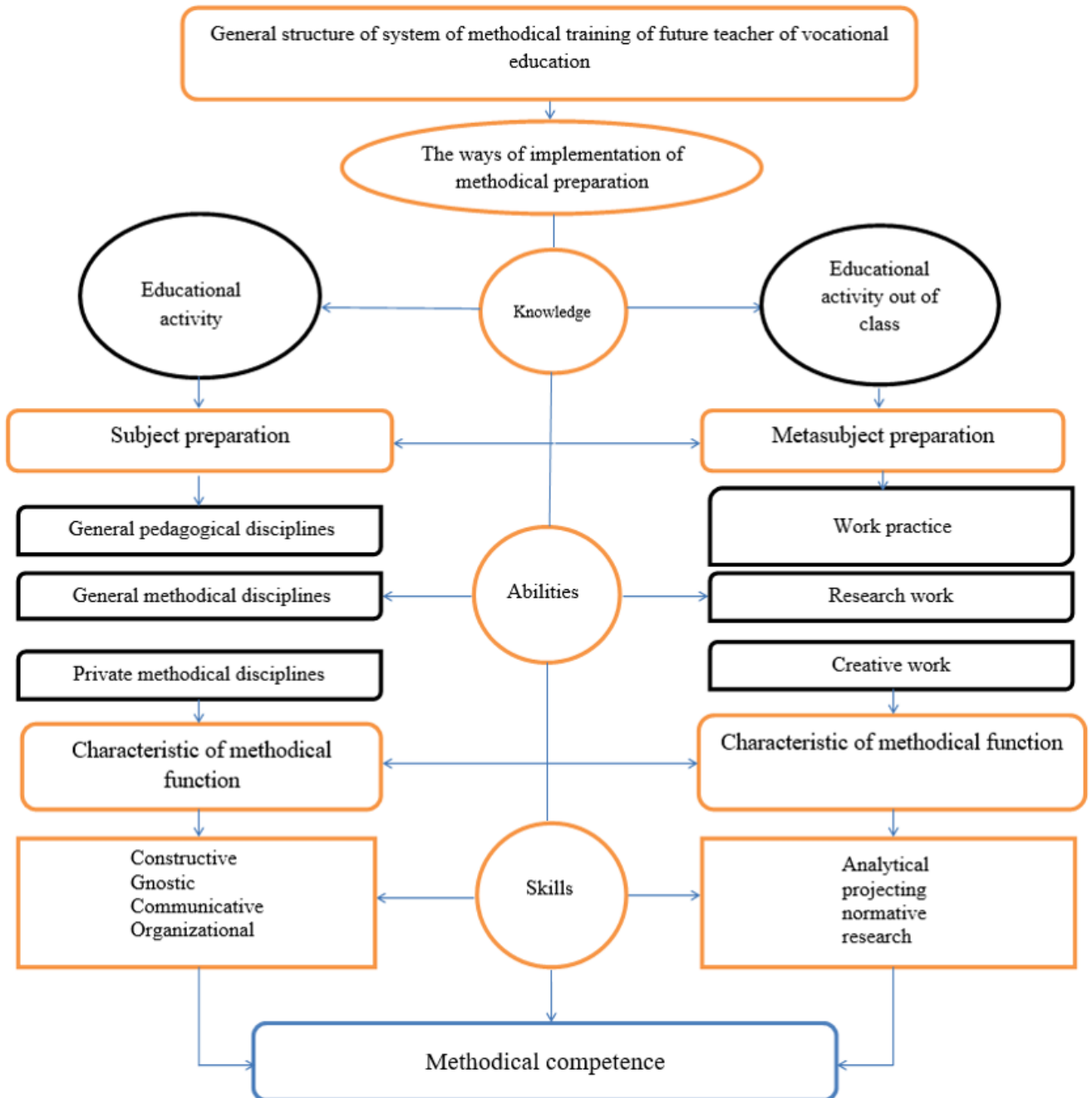


Figure 1. General structure of system of methodical training of future teacher for vocational education.

Thus, the following methodical preparation functions such as organizing, Gnostic, communicative, constructive, standard and research are developed for future teachers. Some have the following substantial characteristics: ability to mark out the key ideas, to update them due to the use of concepts, terms and discussions in the respective area of science, ability to pedagogical interpretation of information arriving from newspapers, magazines, other sources of mass media, to study real educational opportunities of students to distinguish their progress and personal qualities, abilities to compare and generalize, transfer methodical inclusion in other situations and to combine them, ability to find several ways of the solution of one pedagogical task, to own the variable methodical decision etc.

Six disciplines of professional-pedagogical direction that characterise a theoretical and methodological basis for methodical training of future teachers have been defined as a result of the analysis of groups of disciplines directed to the formation of methodical training of future teachers, conforming to requirements, the modular educational programme and the curriculum: "Pedagogical management in vocational education", "introduction to pedagogical specialization", "pedagogics", "professional pedagogics", "professional psychology", "psychology and development of the person" (see Figure 2).

According to the findings of our pilot studies, future teachers who study these fields will gain the knowledge and abilities needed to support the development of a professional and pedagogical orientation for the theoretical and practical foundations of their future careers as well as an appreciation of their high social significance. In addition, he provides an explanation of the general facts, phenomena, ideas, regularities and educational activity techniques in a way that makes

sense in connection to the foundational courses in psychology, pedagogy and methodology. This creates a cycle of pedagogical and psychological disciplines.

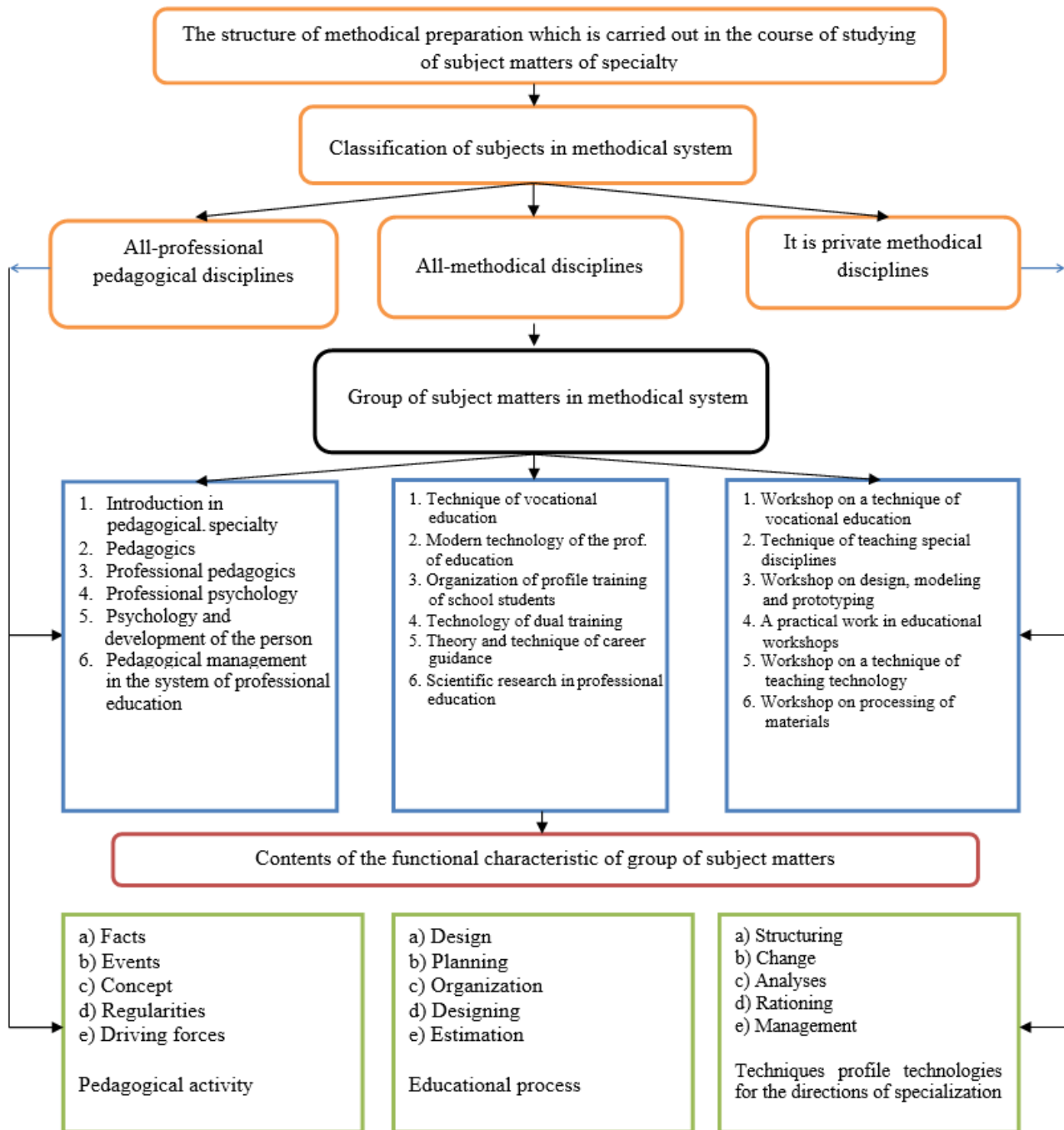


Figure 2. General structure of system of a theoretical and methodological basis of methodical training of future teacher for vocational education.

As a result of studying these disciplines, the future teacher acquires the necessary knowledge and skills to contribute to the formation of a professional and pedagogical orientation of the theoretical and practical foundations of the future profession and understand its high social significance.

At the same time, opening a cycle of pedagogical and psychological disciplines, he explains general facts, phenomena, concepts, patterns and methods of pedagogical activity in logical relations with the main psychological, pedagogical and methodological courses.

Students will become familiar with the educational system, the nature, scope and organization of education, the evolution of subject techniques and the background of pedagogical and psychological ideas in an environment where they will become proficient in the system of information about the elements influencing students' mental and personal development. Six primary subjects of a broad methodological character or "general methodological disciplines" were discovered and chosen as a consequence of reviewing and evaluating the educational and programme documentation of the specialty 5B012000 "Vocational training." They are "methods of vocational training", "modern technologies in vocational

training", " organization of specialized training of schoolchildren", " methods of dual training", " theory and methodology of vocational guidance" and "scientific research in vocational training".

As a result of studying these disciplines, the basis of the general methodological training of the future teacher is formed including the design, construction, structuring, evaluation and correction of the learning process. The ability to create educational and program documents and use them to create educational content to know the methods of developing the content and features of educational and production work, ways of equipping the educational process with didactic means.

Six academic disciplines of a specific methodological nature referred to as "private methodological disciplines" were identified in accordance with the specialization curriculum and the model of methodological training that we provided. They are "workshop on methods of vocational training", "methodology of teaching special disciplines", "workshop on design, modeling and prototyping", "workshop on training workshops", "workshop on methods of teaching technology" and "workshops on materials processing".

During the study of these disciplines, students master special methodological features of the technology of vocational training. They acquire methodological competence in the study and analysis of materials of professional flexibility and skills in accordance with specific didactic tasks and the level of training of students.

At the assessment of the results of independent work by students, the following concept is considered at five levels:

- Literal report and transformation of information (reproductive abilities).
- Ability to work independently on a model (logical abilities).
- Ability to work at a self-regulating self-assessment (ability to analyze and systematize).
- Heuristic ability to work independently (research abilities).
- Creativity, self-training, self-development, the design of self-development and the ability to transform the activity.

It is consistent with the model we presented above which states that creative student research is one of the structural elements of future teachers' methodical training. The extracurricular independent work of students which includes professional practices, research and creative activities is the second successful way of methodological training of future teachers (see Figure 3).

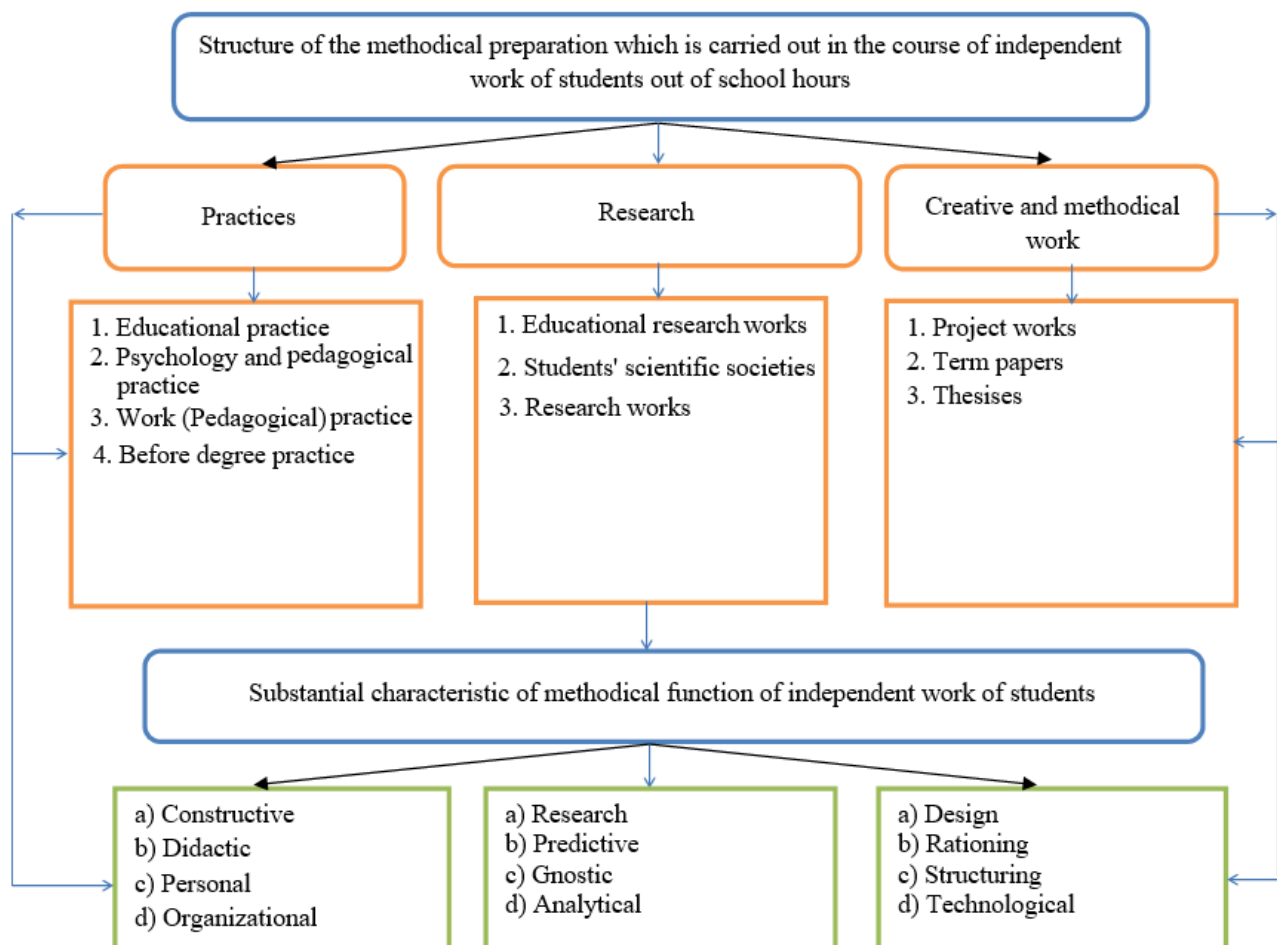


Figure 3. The general structure of the methodical preparation that is carried out in the course of independent work by students outside of school hours.

The teacher often provides guidance but does not actively participate in the independent work that students perform. The purpose of student self-study is to increase the motivation of students to master the curriculum. At the same time,

information competence contributes to the development of research and skills to perform creative work. As a result of students' self-realization, a number of functions contribute to the formation of the methodological training of the future teacher [14]. They are systematized and strengthened by the practical skills and theoretical knowledge of students. The field of theoretical knowledge is expanding and deepening, regulatory, reference and special skills to work with documents in the educational process are being formed, research activities are developing, the study of scientific research, the ability to work independently in solving urgent problems and find rational solutions to professional tasks is being developed.

When evaluating the results of the independent work of students, a number of the following concepts are taken into account. They are displayed on five levels:

- Verbatim communication and transformation of information (reproductive skills).
- Ability to work independently on the model (logical skills).
- Ability to work on self-regulated and self-assessment (ability to analyze and systematize).
- Heuristic ability to work independently (research skills).
- Creativity, self-learning, self-development, self-development design and the ability to transform their activities.

The aforementioned statement which aligns with our suggested model states that student inquiry and creativity are one of the structural elements of a prospective teacher's methodological training. The creative and research work of students is determined by the acquisition of skills and abilities aimed at the development of technical creativity and scientific research based on the student's complex activities in extracurricular activities. In the course of educational and research work, a number of functions of methodological training are implemented.

They develop creative thinking in solving practical problems, develop students' research activities, help find non-standard ways to solve professional problems, promote the acquisition of scientific methods of cognition and creative directions of educational materials, assimilate methods and tools for the development of research skills, solve scientific and practical issues and teach the skill of working in creative teams and form work skills in scientific literature.

The next important component of the methodological training system is the course work carried out by the student independently under the guidance of scientific supervisors.

The completion of the course work is the final stage of the discipline being studied and as a result, the student will be able to demonstrate the degree of mastering and use of theoretical material.

The course work is considered a student's self-fulfilling research and presents the results of research work aimed at solving individual problems as a result of the logical completion of the course being studied. At the same time, one of the main objectives of the course work is the development of students' independent work skills, improving their level of professional and methodological training. In-depth study of the content of the subject contributes to the development of skills and an interest in working with scientific and reference literature.

During the course work, a number of tasks are solved that contribute to the formation of professional and methodological training for the future specialist:

The range of theoretical knowledge obtained as a result of studying special disciplines is expanding and the ability to apply this knowledge to solve problems in the psychological, pedagogical and methodological areas of a particular educational process is deepening.

The ability to work independently increases pedagogical and technical information when solving various tasks in accordance with the relevance of the work as well as to analyze the results of literary experience and pedagogical practice.

The skills of independent work of students in the selection and evaluation of various effective methods are the result of independent work. The role of practice in the process of forming the methodological training of a future teacher is unusual and therefore the leading role of the methodological system proposed by us is assigned to the pedagogical practice of students.

Pedagogical practice as an integral part of professional pedagogical training provides students with the opportunity to apply theoretical knowledge gained in the learning process by including them in the real process of future professional activity and the formation of the personal qualities of a future teacher with professional skills [1].

The activity of students in pedagogical practice is carried out in accordance with the structure and content of pedagogical activity as an analogue of the professional activity of a teacher and is implemented in the real life of the school.

In the context of pedagogical practice, the student's activity is represented by a variety of roles (education, development, parenting, etc.) and reciprocal relationships (students, parents, teachers and students). The basis of professional training and the principles of practical knowledge are provided by pedagogical practice based on fundamental, specialized and psychological-pedagogical knowledge. During the internship, students firstly study psychological, pedagogical, socio-humanitarian and special disciplines under the guidance of methodologists from higher educational institutions. Secondly, they work with the student collective, organize their educational and cognitive activities and thirdly, they communicate with school teaching staff, get acquainted with their experience and improve their professional-methodical level.

During pedagogical practice, the following important tasks underlying professional and methodological training are solved:

- Preparation of the future teacher for the management of the pedagogical process.
- Formation and development of pedagogical abilities (organizational, gnostic, constructive, research and communication).
- Formation and development of skills in the field of professional and methodological activities.

- Development of creative research principles in pedagogical activity.
- Constant interest in the teaching profession.

Pedagogical practice is one of the most complex multidisciplinary processes in the methodological training of a future teacher.

In the final stage of the complex methodical training of the student, implementation of the thesis is carried out under the leadership of the research supervisor. In the course of the implementation of the thesis, the future teacher will master such theoretical and methodical values as modeling, design, structuring and didactics ensuring the educational process and also the separate directions of professional activity of the teacher that allow them to regulate the educational and methodical activity.

The following sequence describes the experimental work done to determine the system of methodological knowledge and abilities that have evolved in future instructors in accordance with the constituent elements of the system of methodological training that we suggested. A thorough qualitative analysis of the content of standard curricula of disciplines defined in accordance with the above curriculum resulted in the selection of specific materials intended to form methodological systematic knowledge and skills which in turn helped determine the level of subject and methodological training of students in the final course of the educational programme "vocational training." Among them, knowledge and skills of a methodological nature were identified, selected from the content of the teaching of six disciplines of pedagogical and psychological direction which are included in the series of general professional pedagogical disciplines. They are

General professional pedagogical disciplines

- The ability to conduct a methodological analysis of regulatory documents that reveal the content of education .
- The ability to activate the cognitive activity of teachers in the learning process.
- The ability to organize collective cognitive activity among students.
- The ability to master the methods of performing mental operations.
- Temperament and specific business acumen of the individual's actions.
- In educational institutions (goal setting, planning , organization , adjustment and regulation , accounting , control and analysis of work).
- The ability to apply optimal pedagogical technologies in vocational training sessions.
- The ability to diagnose the quality of vocational education.

One of the most important components of the system of methodological training for the future teacher is vocational training. A set of "general methodological disciplines" defined in accordance with the curriculum. This series of methodological training consists of six disciplines which are defined above and included in the group. As a result of an individual analysis of the standard curriculum of each discipline, it was found that the formation of knowledge and skills of a methodological nature is expected. They are:

General methodological disciplines:

- Ability to analyze educational and software documents.
- The ability to reflect on the activity and analyze its results in preparation for the lesson.
- The ability to methodological analysis of educational material.
- The ability to develop forms of control over professional knowledge, business and skills.
- The ability to make a logical and didactic analysis of the content of textbooks and teaching materials.
- The ability to conduct methodological analysis of local sections of educational information.
- The ability to analyze methodological workpieces.

A set of "personal methodological disciplines" is regarded as one of the system-forming components from the perspective of subject methodological training. The curriculum reflects these disciplines in several modules because among the individual special disciplines, the "materials processing workshop" in the 1st year will teach the future specialist to form special skills and abilities, to organize the workplace in accordance with sanitary hygienic and ergonomic requirements and to observe the methodological features of performing technological operations. The contribution of each of the two distinct methodological disciplines to the system of methodological training rises with the number of training courses offered in this format [15].

According to the results of the analysis of the substantive text of the sample curricula of individual methodological disciplines in the above curriculum, the system of methodological knowledge and skills that are expected to be formed by the future teacher is reflected in the following character:

Independent methodological disciplines:

- The ability to develop teaching methods in the discipline.
- The ability to form technical concepts and practical skills for students.
- The ability to plan theoretical and practical lesson systems.
- The ability to select the educational literature necessary for studying a specific topic.
- The ability to prepare various forms of presentation of educational materials: block tables (diagrams), algorithms for solving various technical problems, drawing up track summaries, etc.
- Structuring ways to solve theoretical and practical problems is considered in the learning process.

In the scientific forecast of our research work, it is shown that it characterizes the structural model in the system of methodological training for future teachers of vocational training.

In accordance with the proposed model, activities carried out outside of academic disciplines in the curriculum of the educational program are considered part of the educational process which is necessarily carried out in a practical, research and creative direction. The results of the substantive analysis of the text of programs specially formulated for creative, research and practical work in the direction of what is considered metaspecific methodological training showed that the future teacher covers a large part of the methodological training. They are:

Creative and research work

- The ability to evaluate and manage students' activities in the lesson.
- The ability to use theoretical and practical teaching methods in combination.
- The ability to competently work with special pedagogical, psychological, methodological and reference literature.
- The ability to analyze quantitative and qualitative results obtained on the basis of information and logical calculations.
- The ability to conduct substantive and procedural analysis of regulatory and program documents.
- The ability to conduct a final examination based on the experimental work.
- The ability to competently perform various technical operations in the direction of specialization.
- Knowledge of ergonomic, regulatory and safety rules in training and special workshops and laboratories.

Experimental work was carried out in order to determine the level of results of methodological training of students in the final course of the educational program "vocational training" during the 2015-2016 and 2016-2017 academic years. A total of 432 graduate students from M. Auezov south Kazakhstan university and Silk Way University took part in the detection experiment. On the basis of the methodological guidelines formed on the constituent components of the methodological system proposed by us above, four level criteria for assessing the level of methodological training of the future teacher were formed which identified the levels of "low", "medium", "optimal" and "high" training. In addition, the nature of the expected methodological activities of the future teacher in the "subject" and "metaproductive" areas was clarified, a list of special questions, questionnaires and materials on control work were developed.

The substantive nature of the materials submitted by the interrogator for experimental work was carried out on the basis of a series of questions in accordance with [Table 1](#).

Table 1.
General subject and meta-subject components of the methodological training system.

No.	Components of the methodological training system	The meaningful nature of the methodical activities expected from the future teacher
1	General professional pedagogical subjects	Selection of educational literature for teaching a specific topic.
		Ability to work with the content of educational material.
		Distinguish key ideas from learning materials.
		Organization of self-employment activities.
		Analysis of the content of educational programs, textbooks and educational literature.
		Implementation of interdisciplinary links.
		Taking into account the self-motivation of students in the organization and planning of the educational process.
		Comparison and generalization of pedagogical situations.
		Logical and didactic analysis of the content of textbooks and educational materials.
		The ability of students to distinguish between real learning opportunities, personal qualities and learning progress.
2	General methodical subjects	Analysis of student learning documents.
		The use of theoretical and industrial teaching methods.
		Practical use of methods, teaching technologies and guidelines.
		Analysis of methodological developments.
		Students can use differential and individual relationships with learners.
		Preparation of teaching aids with various didactic materials for the implementation of the pedagogical process.
		Preparation of various forms of organization of educational and educational and practical activities of students.
		Methodical analysis of lessons.
Planning a system of classes on the subject of training based on methodical analysis.		
3	Separate methodological disciplines	Preparation of the form and type of control of professional knowledge, business and professional skills.
		Presentation of teaching as personal guidance.
		The ability to consistently use the forms and methods of educational work.
		Determine the objectives of each stage of the lesson and be able to see the expected result.

No.	Components of the methodological training system	The meaningful nature of the methodical activities expected from the future teacher
		Creation of an effective teaching methodology based on real conditions and learning objectives. Drawing up methodological developments for individual subjects of the educational program. Evaluation of special knowledge of students and entrepreneurial spirit and the level of skill development. Preparation of integrated methodical approaches for theoretical and practical training. Methodical analysis of the local section of educational information. Modeling and structuring the presentation of educational information in the lesson.
4	Creative and research work	The ability to find several ways to solve one pedagogical problem. Accounting for the time and effort spent by the teacher and student. The possibility of preparing various forms of presentation of educational materials (Flowcharts, algorithms for solving technical problems and reference notes). Reflection of their actions in preparation for the lesson and analysis of its results. Transformation, modification and analysis of educational materials in accordance with specific didactic tasks and the purpose of training with the level of students' preparation. Be able to formulate the effectiveness of the choice of teaching aids, methods and organizational forms. Organization and management of student activities in the classroom. Systematization of students' knowledge, management of the process of understanding concepts and formation with constant attention to the object of knowledge.

We shall focus on the indicators of the third-year students' degree of methodological training in Table 2. The following findings were drawn during the quantitative processing of the experimental work results on the educational programme courses for the three level indicators "low," "medium" and "high." In the process of processing the results of experimental work, the indicators of the 100 point criterion adopted on credit training technology. We divided the level of methodological training shown by students into three groups: "low", "medium" and "high" indicators [16].

The content and nature at "high" level indicators are as follows:

- Full, consistent and logically high-quality answers to the assigned tasks.
- Can independently analyze and systematize the submitted materials.
- Be able to structure the content of the training program from a "macro" and "micro" point of view.
- Be able to make the right decisions in the implementation of the tasks set.

The content and nature of indicators at "middle" level are as follows:

- Answers to the assigned tasks are presented with insignificant errors.
- In the analysis of the submitted materials, the correct wording will not be complete.
- There is a violation of sequence and consistency in the presentation of the program content.
- There is a lack of skill to apply theoretical knowledge in practice.

The content and nature at "low" level indicators are as follows:

- The complete absence of the correct concept for all types of tasks.
- Allow errors in the analysis of the submitted materials.
- The presence of difficulties in summarizing individual sections of the program materials.
- Is not able to correct mistakes made on all tasks.

The final goal of the newly introduced discipline in Table 3 is to improve the methodological training of the future teacher on the basis of the integration of disciplines of a methodological nature which are included in modular groups in accordance with the curriculum. In particular, the collection of general professional pedagogical disciplines is provided for the systematic formation of facts, phenomena, concepts, patterns, driving mechanisms, relationships, etc. of pedagogical activity of a methodological nature in the process of teaching.

Table 2.

Indicators of the level of methodological training of III-year students.

Well	Number of students	Components of the methodical training system	Levels					
			Low		Medium		High	
			Quantity	%	Quantity	%	Quantity	%
3	198	Indicators of methodical preparation are formed in the collection of general professional pedagogical disciplines.	40	20.2	91	46.4	67	33.4
		Indicators of methodological training are formed by a complex of general methodical subjects.	53	26.37	97	49.0	48	24.4
		Indicators of methodological training are formed by a set of individual methodical subjects.	60	29.5	96	48.8	42	21.62
		Indicators of methodical preparation for creative and research work.	63	32.17	93	47.45	42	21.62
Indicator of the level of general methodical training of the future teacher			55	27.06	94	47.9	49	25.2

As a result of the integration of concepts based on methodological activities in the process of teaching the chapter of the series "general methodological disciplines", it is envisaged to systematize and form the most important components of methodological training for the future teacher. In the process of teaching the chapter of the series "personal methodological disciplines", the theoretical knowledge of a methodological nature accumulated by the future teacher in 1-3 courses and a set of knowledge based on technological and practical activities are integrated into the systematization and formation of a number of important methodological skills. The structure of methodological training which is carried out in the course of independent work of students outside the process of classes, we perceived as a complex integral process and considered it in the content structure of our program, dividing it into three main groups. These are educational and scientific-creative works of a professional and methodological nature performed in the course of practice, creative work and research work.

Table 3.

Indicators of the level of methodical preparation of students of the 4th year.

Well	Number of students	Components of the methodical training system	Levels					
			Low		Medium		High	
			Quantity	%	Quantity	%	Quantity	%
4	234	Indicators of methodical preparation are formed in the collection of general professional and pedagogical disciplines.	43	18.3	98	41.8	83	35.4
		Indicators of methodical training are formed by a complex of general methodical subjects.	46	19.6	102	43.5	85	36.3
		Indicators of methodical training are formed by a set of individual methodical subjects.	48	20.5	100	42.7	87	37.1
		Indicators of methodical preparation for creative and research work.	47	20.08	107	45.7	89	38.03
Indicator of the level of general methodical training of the future teacher			46	19.62	102	43.4	86	36.7

According to Table 4, in the results of the 3rd year students who conducted experimental work, the lower level of methodological training was 27.06%, in the 4th year students. It turned out that when the training course increased by one course, the lower rate decreased by 7.46%.

The average level indicator of methodological readiness of students in the 3rd year showed a result of 47.9% and in the 4th year, the level indicator was 43.4%. The difference was 4.5%. The level of methodological training of 4th year students is quite high.

A wide range of variation that the share of high-level indicator displays attracted our interest during the study process. The performance indicator of experimental work in third year students showed a level of 25.2% and the percentage of fourth year students was 36.7%. In the last year, the difference in the level of methodological training of graduating students was 11.5%. Therefore, the components of methodological training in the meta-direction that we propose indicate a high share of systematic methodological work and 2-month pedagogical and production practice in the direction of coursework and graduation works.

The high level of methodological training of graduate students is 36.7%. The problem of non-compliance with the requirements for this type of teaching staff is becoming urgent.

The "workshop of methods of vocational training" was included in the modular training plan of the educational programme for future vocational training instructors because it had selection components that aimed to improve the efficacy of the methodological training system that we had presented. The volume of training of the discipline was determined by a 3-credit academic load and on the basis of the system of practical training, training was planned for 6 semesters of the 3rd year. The standard curriculum in the discipline was developed in accordance with the requirements of the university and a special educational and methodological complex was prepared.

The content of teaching the discipline includes disciplines containing the content of methodological training in the series "basic", "professionalization", "specialization" in accordance with the curriculum and practical, creative and research work performed by a student in a professional methodological direction "outside the process of classes".

Table 4.
Comparative indicators of the level of methodical training of students in III and IV courses.

Well	Number of students	Components of the methodical training system	Levels					
			Low		Medium		High	
			Quantity	%	Quantity	%	Quantity	%
3	198	Indicators of methodical training are formed by a set of components that make up the system of the methodical training.	55	27.06	94	47.9	49	25.2
4	234		46	19.6	102	43.4	86	36.7
Differences in indicators of the methodical preparation				-7.46		-4.5		+11.5

We found that the provided system is a continuous professional and pedagogical process that covers the four years of training in higher education institutions, with the goal of raising the level of methodical training for future vocational education teachers. During the research, 12 components of the methodical preparation system have been analysed. (see Tables 5 and 6).

Table 5.
General subject and meta-subject components of the methodological training system.

No.	Components of a methodical training system	Years (Courses)			
		I	II	III	IV
1	Vocational-pedagogical disciplines	+	+	+	
2	All methodical disciplines		+	+	
3	Part-methodical disciplines			+	+
4	Educational-research works	+	+	+	+
5	Scientific research works		+	+	+
6	Students' work in the scientific community		+	+	+
7	Practice	+			
8	Psychologic-Pedagogical practice		+		
9	Pedagogical practice			+	+
10	Term work of students	+	+	+	+
11	Term papers			+	+
12	Performance of degree work (Diploma work)				+

Table 6.

Level indicators of the substantive nature of the components that make up the system of methodological training.

No.	Levels of methodical preparation	Criteria for methodical preparation Indicators (The expected methodical activity from a future teacher)	Indicators (The expected methodical activity from a future teacher)
1	Minimum	General methodical competence	<ol style="list-style-type: none"> 1. The organization and management of activities of students during their occupations. 2. Use of theoretical and practical methods of training. 3. Ability to work with the maintenance of a training material. 4. Differentiation of the key ideas in training materials. 5. Organization of independent work of students. 6. Analysis of contents of educational programs, textbooks, educational and methodical literature.
2	Average	General and private methodical competences	<ol style="list-style-type: none"> 1. Implementation of cross-disciplinary communications. 2. Accounting for personal students of motivation in the organization and planning of the educational process. 3. Ability to consistently use forms and methods in teaching and educational works. 4. Comparison and conclusions of pedagogical situations 5. Abilities to use differentiated and individual approaches to students. 6. Development of training materials with various didactic means for realization pedagogical process.
3	Optimum	Cross disciplinary methodical competence	<ol style="list-style-type: none"> 1. Preparation of various control and measuring materials determining the level of formation of knowledge and abilities of students . 2. Logical and didactic analysis contents of textbooks and training materials. 3. Planning of system of lessons on the basis of the methodical analysis. 4. Development of methodical recommendations about separate subjects of the training program. 5. Methodical analysis of lessons. 6. Assessment of level of special knowledge, skills of students .
4	The highest	Methodical competences on a creative basis	<ol style="list-style-type: none"> 1. Development of integrated methodical approaches to theoretical and practical training. 2. Ability to carry out a reflection by preparation and the analysis of results of a lesson. 3. Abilities to analyze training materials according to specific didactic objectives and the level of readiness of students. 4. Ability to formulate the efficiency of the choice of training materials, methods and organizational forms of training. 5. Ability to define the purposes of each stage of a lesson in compliance with the expected result. 6. Ability to find several versions of the solution to one pedagogical problem.

4. Findings

The process of formation of level of methodical training of a future teacher can be divided into three main stages.

- Formation of methodological basis for methodical preparation.
- Formation of the basis of the general methodical preparation.
- Formation of the basis of subject and methodical preparation.

The methodological basis of the methodical preparation is defined by the formation of a whole set of professional, pedagogical and psychological disciplines in the educational process. A basis for methodical preparation is that a set of general methodical disciplines will be created in the course of training during the independent and creative work of a future teacher.

5. Conclusion

Concrete methodical preparation at the third stage is defined by methodical disciplines in the educational process and during the passing of student teaching, performance courses and the thesis.

Therefore, from a scientific perspective, methodical preparation will offer the opportunity to combine methodical knowledge and abilities with the flexibility to use both classic and new approaches as well as the ability to adapt to numerous changes in the activities of future teachers.

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