

# IMPROVING THE METHODOLOGICAL SYSTEM FOR FORMING MATHEMATICAL COMPETENCES IN FUTURE PRIMARY SCHOOL TEACHERS

<sup>1</sup>Ismoilov Bobur Toxirovich, <sup>2</sup>Djumaev Mamanazar Irgashevich

<sup>1</sup>Lecturer at Termez State University

<sup>2</sup>Professor of Tashkent State Pedagogical University

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**Abstract.** *The principle of the unity of group and individual learning presupposes their optimal combination. This principle is determined by the fact that an individual becomes a person, on the one hand, with the support of communication and interaction with other people, and on the other hand, with his own desire for isolation. Communication involves a special type of activity in the process of which an idea and concept of another person arises. Communication, interaction and isolation guarantee the socialization and development of the individual.*

**Keywords:** *vocational guidance, school, college, education, training, preparation, plan, program.*

In pursuance of the Decree of the President of the Republic of Uzbekistan dated January 25, 2018 No. PD-5313 “On measures to radically improve the system of general secondary, secondary specialized and vocational education”:

Create a Center for Professional Education of the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan (hereinafter referred to as the Center) on the basis of the Center for Secondary Specialized, Vocational Education of the Ministry of Higher and Secondary Specialized Education of the Republic of Uzbekistan.

The model of the formation of didactic competence of students of a pedagogical university in the process of independent work is considered as a kind of analogue of the activity of a teacher and students aimed at solving common problems of the formation of didactic competence in the process of independent work.

The model determines the logic of the formation of the didactic competence of students of a pedagogical university in the process of independent work, displays the main properties of the components, the connections between them, which are characteristic of this process and essential for achieving the goal. The model integrates the goals, content and expected result of the formation of the didactic competence of students of a pedagogical university in the process of independent work.

To achieve the goal, the most productive are systemic (carried out in the form of a system of actions to solve the problem posed), personality-oriented (approves ideas about social, activity and creative essence of a person as a person) and activity-competence (focuses attention on the result of education, and the student's ability to recognize, formulate and solve didactic problems that arise in the learning process is considered as a result) approaches.

These methodological approaches are the basis in the study of the problem of the formation of didactic competence of students of a pedagogical university, as they solve the problems of theoretical and methodological, profile-oriented and practice-oriented direction.

Let us turn to the characteristics of the principles that govern the formation of didactic competence of students of pedagogical university in the process of independent work. Under the principle we understand the guiding position, the basic rule, the installation for any activity. We believe that when forming the didactic competence of students of a pedagogical university in the process of independent work, it is important to take into account general (integrity, scientific character, continuity, cultural conformity) and specific (unity of group and individual learning, unity of theoretical and practical activities) principles.

The principle of integrity makes it possible to consider the system as a whole and at the same time as a subsystem for higher levels. The integral process of forming the didactic competence of students is characterized by the internal integrity of its constituent components, their harmonious interaction.

In terms of content, integrity is ensured by the reflection in the goal and content of this process of four interdependent elements: motivational-value orientations, didactic knowledge of the essence of the learning process; didactic skills to apply this knowledge in educational activities; ability to adequately assess their performance. Interaction of key elements of the process of formation of didactic competence of students of pedagogical higher education institution is nothing else than the implementation of the integrity of the educational, developmental and educational functions of the educational process.

The principle of scientific character means that the content of education corresponds to the degree of development of modern science in the field of learning theory, the experience gained in pedagogical science and practice. This principle requires that the content of the process of formation of didactic competence students of a pedagogical university, implemented both in academic and extracurricular time, was aimed at familiarizing them with objective scientific facts, phenomena, laws, basic theories and concepts, approaches to identifying modern achievements of science and prospects for its development.

The principle of continuity acts as a methodological principle and regulator in educational activities in relation to the methods of selecting scientific content on the theory of learning as a section of pedagogical science and its interaction with new knowledge, to the methods of implementing educational interaction with the experience of developing science in chronological order - historical, modern, predictive.

Formation of didactic competence of students in application to the principle of cultural conformity is determined by the purpose and main tasks of education, among which the need for pedagogical inculturation (introduction to culture) of students of a pedagogical university is put in the first place. Becoming a carrier values, a student of a pedagogical university in the process of learning perceives, reproduces these values, strives for creativity in his future professional activity.

The principle of the unity of group and individual learning presupposes their optimal combination. This principle is determined by the fact that an individual becomes a person, on the one hand, with the support of communication and interaction with other people, and on the other hand, with his own desire for isolation. Communication involves a special type of activity in the process of which an idea and concept of another person arises. Communication, interaction and isolation guarantee the socialization and development of the individual.

The principle of the unity of theoretical and practical activity rejects the abstract educational orientation of the formation of the didactic competence of students of a pedagogical university in the process of independent work and implies a comparison of existing theories with

real pedagogical practice. It focuses on the comparison of the content, configurations of its study, methods, methods and technologies of teaching in educational organizations.

Based on our assumptions, we will consider the criterion as an optimal feature, on the basis of which a comparative assessment is performed, the probability of making a decision, the selection of the optimal direction of activity, as a starting point that allows you to set the limits of norms, requirements, rules that are necessary to obtain an objective result that determines the formation of the didactic competence of students of a pedagogical university in the process of independent work [144]. In addition to the criteria on the basis of which the assessment is carried out, our study should introduce indicators that will act as indicators that specify the distinctive features of the most complex indicators.

Thus, the didactic competence of students of a pedagogical university becomes a "coordinator" of the correspondence of knowledge, skills, experience creative activity and emotional-value relations of students to the real level of complexity of the tasks they perform and the problems they solve.

Based on this, it can be stated that the model of the formation of the didactic competence of students of a pedagogical university in the process of independent work contributes to the actualization of their potential for organizing didactic process.

Let us present the criteria for the didactic competence of students of a pedagogical university in the process of independent work in more detail, defining the indicators of the formation of each of them.

Based on the fact that the didactic competence of students is a diagnosed structure, low, medium, high levels of its formation are distinguished.

**Criteria characteristic of didactic competence students of a pedagogical university**

Criteria	Indicators
Motivational value	awareness of the importance of the formation of didactic competence for self-realization in pedagogical activity; - acceptance of the value of didactic knowledge in solving applied problems in pedagogical activity; - manifestation of motivation, manifestation of interest in learning activities; - manifestation of strong-willed efforts in achieving specific goals in solving didactic problems; - recognition of future professional pedagogical activity as a personal value; - understanding of educational and training activities in the solution professional tasks.
Cognitive	- the presence of knowledge of the essence of the learning process as an integral system, the laws and principles of learning, the main directions of learning in a modern school; - availability of knowledge about the content of education, about the formation of the content of education;

	<ul style="list-style-type: none"> <li>- knowledge of the basic didactic concepts;</li> <li>- manifestation of knowledge about didactic forms, methods and technologies of teaching at school;</li> <li>- the presence of ideas about didactic principles and teaching aids;</li> <li>- manifestation of knowledge about ways to achieve educational results and ways to assess learning outcomes;</li> <li>- availability of knowledge of modern approaches to the organization of the learning process;</li> <li>- the presence of ideas about developing and corrective work with students in the learning process;</li> <li>- availability of knowledge of normative documents on the issues of education and upbringing of children and youth.</li> </ul>
Activity	<ul style="list-style-type: none"> <li>- the ability to organize interaction in the learning process;</li> <li>- the ability to select the content, forms, methods, means and technologies of training in accordance with the goals and principles of activity;</li> <li>- conscious application of knowledge in the implementation of didactic principles of teaching in the classroom;</li> <li>- the ability to objectively assess the knowledge of students on the basis of testing and other control methods in accordance with real educational opportunities for children;</li> <li>- the ability to carry out developmental and corrective work with students in the learning process;</li> <li>- application of knowledge in standard didactic situations as an algorithm of activity in solving didactic problems.</li> </ul>
Evaluative	<ul style="list-style-type: none"> <li>- the ability to exercise self-control and self-analysis of the results of educational and training activities;</li> <li>- the ability to critically evaluate the result, the presence of constant reflection;</li> <li>- use of the results of reflection in the design of educational activities.</li> </ul>

It is possible to move from one level of didactic competence of students to another, due to quantitative and qualitative changes. Since the diagnosed structure is characterized by processes formation, we can talk about the growth of didactic competence, about conditions conducive to (positive direction of change) and hindering its development (stagnation, inefficiency, decline in qualitative and quantitative indicators).

High level of formation of didactic competence students are characterized by a holistic and systematic reproduction of the characteristics of the elements of educational and training activities, a meaningful attitude to didactic knowledge as a value in solving applied problems, showing interest in didactic problems, striving for the development of personal and professional values and motives. Student is able to independently see professional problems and ways to solve them, as well as consciously apply didactic knowledge and skills in the process of solving didactic

problems. The student is distinguished by a high degree of awareness in the field of the teaching profession, psychology. This level is manifested in the subjectivity of students in the organization of the learning process. The student uses an individual style of activity, realizes and solves didactic problems at the level of modern effective theories and technologies for designing and modeling the learning process (system modeling).

The average level is determined by the reproduction of non-systemic and non-integral characteristics of didactic knowledge and skills, sustainable cognitive and social activity with partial awareness and acceptance professional and personal values as ideals and aspirations; educational and training activities are of a reproductive nature. This level is characterized by the variability and effectiveness of the didactic skills used, the rejection of stereotypes in activities, the critical rethinking of one's experience in order to improve it, and the use of creative thinking techniques. The student is aware of the need to improve experience, didactic knowledge, shows the ability to make methodological modifications to the organization of the learning process, and is ready to solve didactic problems.

The low level is expressed in the fragmentary reproduction of didactic knowledge and skills, stereotyping (clear adherence to patterns, a limited set of methods and forms) of activity, the use of ready-made teaching technologies, positioning oneself only in the context of the subject being taught. The student does not show readiness and ability to dialogue.

The level characteristics are based on the degree of mastery of the components that form the structure and criteria of the didactic competence of students of a pedagogical university.

Thus, the formation of the didactic competence of students of a pedagogical university in the process of independent work is considered as a process aimed at creating pedagogical conditions in educational activities that contribute to self-improvement and self-realization, which is in dynamics and consists of stages united by the goal mastering by students the highest possible level of formation didactic competence.

The model for the formation of didactic competence of students of a pedagogical university in the process of independent work can be effective under certain pedagogical conditions. The identification and creation of pedagogical conditions for the effective functioning of the model made it possible to investigate many issues.

In this study, we adhere to the third position and believe that under the pedagogical conditions for the formation of the didactic competence of students of a pedagogical university in the process of independent work, one can understand a set of interrelated circumstances of educational relations that allow one to effectively form the didactic competence of students .

It should be noted that web quests contribute not only to motivating students to study new material, but also to organizing work in the form of targeted research that is not limited in time, as well as activating independent individual or group activity, which they themselves manage.

The student can use teaching aids, additional materials. As a rule, in classes using the preliminary study method, the material is better absorbed, the student approaches the study of the material more consciously and shows interest in further study.

The use of motivating methods of knowledge control (cumulative grades, rating, tests, non-standard forms of the exam). Under certain conditions, it can cause a desire for competition, which in itself is a strong motivational link that contributes to the activation of independent work of students of a pedagogical university.

So, the process of organizing educational activities involves the development of interconnected cognitive and professional motives among students. Cognitive motives act as a source of formation of professional motives, their initial form in vocational training: the severity of cognitive motives in learning contributes to a positive attitude towards the formation of didactic competence of students of a pedagogical university in the process of independent work.

The use of the motivational methods proposed above, as well as the implementation of the teacher's purposeful activities to improve these methods, will ensure the effective formation of a positive motivation for students of a pedagogical university to work independently.

The information and educational environment is of great importance for the formation of the didactic competence of students of a pedagogical university, since it not only provides unlimited opportunities for search for the necessary educational information for independent work, but also attracts participation in new activities. Therefore, we consider the use of the possibilities of the information and educational environment of the university as the most important condition for ensuring the effective organization independent work of students of a pedagogical university.

For the effective functioning of the model for the formation of didactic competence of students of a pedagogical university in the process of independent work, the following pedagogical conditions are necessary: in the educational process, internal motivational methods of activating independent work aimed at developing the didactic competence of students of a pedagogical university; ensuring the organization of independent work of students of a pedagogical university through an information educational environment of a didactic orientation; the inclusion of students of a pedagogical university in independent work through the performance of competence-oriented multi-level educational tasks; monitoring the results of independent work of students of a pedagogical university in the formation of didactic competence.

The pedagogical conditions that ensure the effective functioning of the model for the formation of didactic competence of students of a pedagogical university in the process of independent work: the introduction of motivational methods of activating independent work aimed at developing the didactic competence of students of a pedagogical university; ensuring the organization of independent work of students of a pedagogical university through an information and educational environment of a didactic orientation; the inclusion of students of a pedagogical university in independent work through competence-oriented multi-level learning tasks; monitoring the formation of didactic competence of students of a pedagogical university in the process of independent work.

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