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# Professional pedagogical activity of mathematics teacher on the basis of innovative approaches to teaching

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**Annotation**
In the article the analysis of psychological, pedagogical and methodical researches of the problem of improvement of professional training of the future teacher of mathematics in pedagogical university is considered. It shows that professional pedagogical activity is integrative, includes both traditional and innovative components of pedagogical activity.
**Key words.** Modernization, educational process, pedagogical professional competence, didactic activity, technology, pedagogical creativity, competence.

The modern stage of education modernization puts forward higher requirements to the teacher's professional training, to the mastery of the latest methods and technologies of teaching. This requires, on the one hand, new, more effective ways of organizing the educational process in pedagogical university, in particular, the revision of the structure and content of methodological training of students. On the other hand, the very concept of "professional pedagogical activity of a teacher" undergoes certain changes.
Analyzing the content of the concepts accompanying the main one - "pedagogical abilities", "professional potential of a teacher", "pedagogical professionalism", "professional pedagogical competence", "pedagogical creativity", "pedagogical culture" (V.A. Krutetsky. Krutetsky, N.V. Kuzmina, A.K. Markova, V.M. Monakhov, I.P. Podlasy, T.S. Polyakova, M.M. Potashnik, V.A. Slastenin, etc.), it can be seen that the authors build them in a certain sequence, each element of which corresponds to a certain level of professional pedagogical activity. Thus, relatively recently the concept of "competence" is used to characterize the level of professional training. The concept of competence is wider than the concept of knowledge, or ability, or skill; it includes them as a cognitive and operational-technological component, as well as motivational, ethical, social and behavioral. O.B.Episheva under competence (in particular, professional-pedagogical) understands the general ability and readiness of a person to activity (professional-pedagogical), based on knowledge and experience, which are acquired through training.
On this basis we distinguish the following levels of professional pedagogical activity.
Level I - reproductive, including pedagogical abilities and professional potential of a teacher - a system of natural and, acquired on this basis in the process of professional training, qualities of personality; manifested in standard pedagogical situations and can still be called pedagogical literacy (education);
II level - pedagogical professional competence, defined as readiness to perform professional activities in accordance with accepted standards and norms. Pedagogical competence is formed in the course of mastering by a person of communication systems and inclusion in joint activities. Professional-pedagogical competence can serve as an integral professional and personal characteristic of a teacher, because it is expressed in the ability to act adequately,

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independently and responsibly in a constantly changing professional situation.

Sh level - pedagogical creativity, is manifested in the process of solving pedagogical problems in non-standard situations. The ability to creative perception, understanding and transformation of reality is also called professional culture.

Activity of a mathematics teacher in the learning process. The learning process, according to M.N.Skatkin's definition, is characterized by the sequence of deployment of learning activities, i.e. the teacher's organization of learning the content of the subject. Teaching, according to V.A.Slastenin, is nothing but a specific process of cognition, managed by a teacher. General provisions and regularities inherent in the teaching of all subjects are considered in didactics, and therefore we can conditionally talk about the "didactic activity" of the teacher, which is based on these general regularities.

At the same time, teaching each subject has its own specificity, determined by the purpose of its study, content and peculiarities of assimilation by students. This specificity is taken into account and is reflected in subject methods (or private didactics), so we can conditionally speak about "special didactic activity" of a teacher of mathematics. The content and structure of the teacher's activity in the educational process, including the teacher of mathematics, is discussed in scientific research quite often, in Table 1.1. different approaches to the definition of the components of this activity are given.

Table 1.1. Teacher's activities in the learning process

| № | . Author, year | Components of teacher's activity in the learning process |
|---|---|---|
| 1. | M.N.Skatkin 1982. | Teacher's preparation for the lesson: studying the program, textbooks, teaching aids, setting goals, developing a lesson plan; conducting and analyzing the lesson. |
| 2. | V.I.Zagvyazinsky 1987. | a) Analysis of the initial state, diagnosis, forecasting and prediction; b) goal-setting; c) planning; d) specification of the plan in the form of a project or program (design); e) implementation of the program or project, solution of the tasks, achievement of the given state; f) control and correction. |
| 3. | V.G. Gilev 1987. | Methodological analysis of teaching material structural and logical analysis, identification of learning objectives, methodological processing, generalization and systematization of knowledge and skills, identification of content and forms of control. |
| 4. | M.M. Potashnik 1987. | Creative lesson planning: to see different options and choose the best of them, to construct the best option, to search for a fundamentally new solution, to create their own methodological system. |
| 5. | E.I Lyashchenko 1988 | Logical-mathematical and logical-didactic analysis of teaching material; methodical analysis of literature on mathematics, pedagogy, psychology, history of mathematics, teaching methods; methodical analysis of forms and means of teaching. |
| 6. | V.P.Bespalko, | Designing and redesigning, leading to the creation of a |

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| | | |
|---|---|---|
| | 1989 | new educational process and a new pedagogical system. |
| 7. | L.Y.Zorina<br>1989 | .Preparing for the lesson, delving into the area being taught, creative interaction with the program and the textbook, and a creative approach to planning teaching process. |
| 8. | I.A. Novik<br>1990. | .Methodological culture of the teacher: general, special and specific methodological skills, based on knowledge and skills acquired during the study of mathematics, pedagogy, psychology, and psychology.<br>study of mathematics, pedagogy, psychology, methodology of mathematics, social disciplines, and related to the teaching of mathematics. |
| 9. | G.I. Sarantsev<br>1990 | Organization of students' learning activities and communication between them in the process of educational work |
| 10. | A.K Markova<br>1993. | 1) Professional psychological and pedagogical knowledge; 2) Professional pedagogical skills; 3) Professional psychological positions and attitudes of the teacher; 4) Personal characteristics of the teacher. Pedagogical reflexion. |
| 11. | G.E.Alimukhambetova<br>1994 | 1) Reflexive-retrospective; 2) Reflexive- synchronic-diagnostic; 3) Reflexive and synchronic-diagnostic. synchronous-diagnostic; 3) prognostic; 4) projective; 5) constructive; 6) organizational-practical communicative; 7) control-corrective. |
| 12. | V.I Andreev 1996. | Management of students' development: 1) deepening<br>1) deepening of ideas about the peculiarities of their character, etc.; 2) awareness of their inclinations, etc.; 3) expansion of the sphere of thought activity of students in the direction of their professional self-determination; 4) encouragement to engage in self-education, self-development; 5) assistance in overcoming their bad habits, weakness, etc. |
| 13. | S.G. Manvelov<br>1997 | Designing a lesson according to special rules: the focus of the lesson and the detailing of its didactic tasks; clarification of the type and rational construction of the lesson content; reasonable choice of means, methods and techniques of teaching; variety of forms of organizing students' educational activities. |

The components of professional pedagogical activity discussed above (Fig. 1.1.) are transformed in a certain way into the activity of a mathematics teacher; they are interconnected, as are the very concepts of “education”, including “training”, “upbringing”, “development”. For example, when designing a lesson, the teacher must keep in mind not only the subject content, but also

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take into account the character and personal problems of each student, this is how the cognitive (gnostic) and organizational components of the activity are interconnected; from which lesson they will come to this lesson, etc. Therefore, the components of a mathematics teacher's activity in the educational process from the standpoint of professional pedagogical activity can also be divided into traditional (cognitive, informational, organizational, constructive (planning), communicative) and innovative (design, research, intellectual, diagnostic, corrective) , prognostic, creative, axiological, reflective), and from the standpoint of the specific activities of the teacher in teaching mathematics, they can be divided into psychological-didactic and methodological-mathematical.

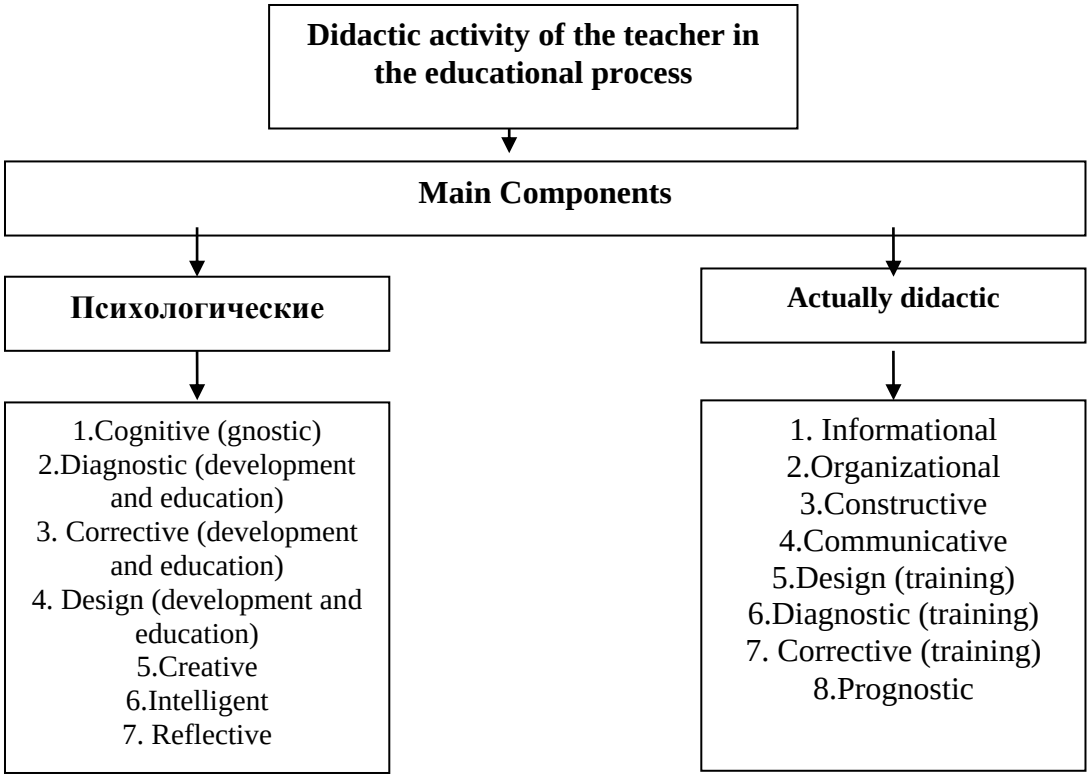


Fig.1.2. Structural diagram of the content of the concept "Teacher's didactic activity in the educational process"

Methodological and mathematical components determine the special didactic activity of a mathematics teacher, which is integrative.

The methodological activity of a mathematics teacher reflects, on the one hand, the actual didactic activity presented in Figure 1.2.; it can be called a general methodological activity and also divided into traditional and innovative components (Fig. 1.1.); on the other hand, special methodological activities related to the specifics of mathematics, the content and characteristics of mathematical activity. In accordance with the components of mathematical activity, special methodological activity includes teaching: mathematical concepts, mathematical propositions, proofs, solving mathematical problems, mathematical methods of knowing reality, etc.

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