
LEVELS OF PROFESSIONAL PEDAGOGICAL ACTIVITY FUTURE MATHEMATICS TEACHER BASED ON INNOVATIVE TECHNOLOGIES FOR LEARNING

A. A. Ergashev

Kokand State Pedagogical Institute
Senior Lecturer of KSPI

D. D. Aroev

Kokand State Pedagogical Institute

ANNOTATION

This article provides information on the level of professional pedagogical activity of a future mathematics teacher based on innovative teaching technologies, as well as on the quality of education .

Keywords: innovative technologies, professional pedagogy, pedagogical competence, pedagogical literacy .

The current stage of modernization of education puts forward increased requirements for the professional training of teachers, for mastering the latest teaching methods and technologies. This requires, on the one hand, new, more effective ways of organizing the teaching and upbringing process in a teacher training university, in particular, a revision of the structure and content of the methodological training of students. On the other hand, the very concept of "professional pedagogical activity of a teacher" is currently undergoing 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, N.V. Kuzmina, A.K. Markova, V.M. Monakhov, I.P. Podlasy, T.S. Polyakova, M.M. Potashnik, V.A. some sequence, each element of which corresponds to a certain level of professional pedagogical activity. So, relatively recently, in relation to the characteristics of the level of professional training, the concept of "competence" is used. The concept of competence is broader 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. OB Episheva under competence (in particular, professional pedagogical) understands the general ability and readiness of the individual for activity (professional pedagogical), based on knowledge and experience that are acquired through training.

On this basis, we single out the following levels of professional pedagogical activity.

I level - 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, personality traits; manifests itself in standard pedagogical situations and can also be called pedagogical literacy (education);

II level - pedagogical professional competence, defined as the readiness to perform professional activities in accordance with accepted standards and norms. Pedagogical competence is formed in the course of human development of communication systems and inclusion in joint activities. Professional and pedagogical competence can serve as an integral professional and personal characteristic of a teacher , because expressed in the ability to act adequately, independently and responsibly in a constantly changing professional situation.

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

The activity of a mathematics teacher in the educational process. The educational process, according to the definition of M.N. Skatkin, is characterized by the sequence of deployment of learning activities, i.e. organization by the teacher of assimilation of the content of the subject. Education, according to V.A. Slastenin, is nothing more than a specific process of cognition, controlled by a teacher. General provisions and patterns inherent in teaching all subjects are considered in didactics, and therefore we can conditionally speak of the "didactic activity" of the teacher, which is based on these general patterns.

At the same time, the teaching of each subject has its own specifics, determined by the purpose of its study, the content and features of assimilation by students. This specificity is taken into account and reflected in subject methods (or particular didactics), so we can conditionally speak of a "special didactic activity" of a mathematics teacher. The content and structure of the teacher's activity in the educational process, including the teacher of mathematics, is discussed quite often in scientific research, in Table 1.3. different approaches to the definition of the components of this activity are given.

Table 1.3. The activity of the teacher in the educational process

No.	Author, year	Components of the teacher's activity in the educational process
1	M.N. Skatkin 1982	Preparing a teacher for a lesson: studying the program, textbooks, teaching aids, setting goals, developing a lesson plan; conducting and analyzing the lesson.
2.	V.I.Zagvyazinsky 1987 r.	a) Baseline analysis, diagnostics, forecasting and prediction; b) goal setting; c) planning; d) concretization of the plan in the form of a project or program (design); e) the implementation of a program or project, the solution of the tasks put forward, the achievement of a given state; f) implementation of control and correction.
3.	V.G. Gilev 1987 r.	Methodological analysis of educational material structural and logical analysis, identification of learning objectives, methodological processing, generalization and systematization of knowledge and skills, identification of the content and forms of control.
4.	MM. Potashnik 1987	Creative lesson planning: see different options and choose the best one, design the best option, look for a fundamentally new solution, create your own methodological system.
5.	E.I Lyashchenko 1988 r.	Logical-mathematical and logical-didactic analysis of educational material; methodical analysis of literature on mathematics, pedagogy, psychology, history of mathematics, teaching methods; methodical analysis of forms and means of education.
6.	V.P. Bepalko, 1989	Design and redesign, leading to the creation of a new educational process and a new pedagogical system.
7.	L.Ya.Zorina 1989	Preparation for the lesson, deepening in the area being taught, creative interaction with the program and textbook, and a creative approach to planning the educational process.
8.	I.A. Novik 1990 r.	Methodological culture of the teacher: general, special and specific methodological skills based on the knowledge and skills acquired in the study of mathematics, pedagogy, psychology, mathematics methodology, social disciplines, and related to the teaching of mathematics.
9.	G.I. Sarantsev 1990 r.	Organization of educational activities of students and communication between them in the process of educational work.

10	A.K. Markova 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 reflection.
11	G.E. Alimukhambetova 1994	1) Reflective-retrospective; 2) reflexive-synchronous-diagnostic; 3) prognostic; 4) design; 5) constructive; 6) organizational and practical communicative); 7) control _corrective.
12.	V.I. Andreev 1996	Management of student development : 1) deepening ideas about the characteristics of their character, etc.; 2) awareness of one's inclinations, etc.; 3) expansion of the sphere of mental activity of students in the direction of their professional self-determination; 4) motivation to engage in self-education, self-development; 5) assistance in overcoming their bad habits, weakness of will, etc.
13.	S.G. Manvelov 1997	Designing a lesson according to special rules: the purposefulness of the lesson and the detailing of its didactic tasks; clarification of the type and rational construction of the content of the lesson; reasonable choice of means, methods and techniques of training; a variety of forms of organization of educational activities of students.
14	V.M. monks 1998	Designing the educational process: 1) goal setting, 2) diagnostics, 3) the logical structure of the educational process, 4) correction, 5) extracurricular activities.
15	T.S. Polyakova 1998	Historical and methodological competence: the presence of solid knowledge in the field of the history of school mathematical education; 2) the formation on this basis of generalized skills and abilities based on the experience of the past, and embedding it in personal experience.
16.	O.B.Epischeva 1999	Designing the educational process: 1) goal setting (training, developmental and educational goals and their level differentiation), 2) diagnostics, 3) structuring the content of the material being studied, 4) dosing tasks, 5) structuring the educational process, 6) monitoring, correction and evaluation of educational activities students), 7) management of the educational process.
17.	V.V. Serikov 1999	Designing a methodological system of personality-oriented pedagogical activity: personality-oriented goal-setting, selection of the content of the material, assimilation procedures, compliance of learning outcomes with standards, methods of control and correction, reflection.
18.	L. V. Shkerina 1999	Mathematical activity; educational activity , quasi-professional activity, professional and pedagogical communication.
19.	T.M. Safronova 1999	Design activity: technology for designing the mathematical development of students.
20	ON THE. Duka 1999	Innovative activity: components: motivational, cognitive, technological, reflective; pedagogical design as a condition for preparation for innovation activity.
21.	E.B. Mainagasheva 1998 I.V. Sidorova 2000.	Design activity: goal-setting, diagnostics, dosing of homework, logical structure of the educational process, correction; activities for thinking through, fixing and implementing a holistic educational process.
22.	V.F. Lyubicheva 2000 r.	Design activity: goal setting, diagnostics, correction, dosing of independent work; research activity .
23.	ON THE. Demchenkova 2000 r.	Research activity: formulation of problem-search tasks.
24.	T.K. Smykovskaya 2000 r.	Methodological activity: epistemological, humanistic, design, normative and reflective components.
25.	I.V. Drobyshev 2001 r.	Modeling the learning activities of students based on their individual characteristics, the knowledge and skills of a mathematics teacher necessary for differentiated learning of students.

The components of professional pedagogical activity considered above (Fig. 1.1.) are transformed in a certain way into the activity of a mathematics teacher; they are interrelated, as are the very concepts of

"education", including "training", "education", "development". For example, when designing a lesson, the teacher should keep in mind not only the subject content, but also take into account the nature, personal problems of each student, so the cognitive (gnostic) and organizational components of the activity are interconnected; from what class they will come to this lesson, etc. Therefore, the components of the activity of a mathematics teacher 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 (designing, research, intellectual, diagnostic, corrective, predictive, creative, axiological, reflexive), and from the standpoint of the specific activity of a teacher in teaching mathematics, they can be divided into psychological-didactic and methodological-mathematical.

Psychological and didactic components do not depend on the subject and determine the didactic activity of the teacher; they reflect the components of the teacher's professional pedagogical activity, discussed above and presented in the diagram (Fig. 1.1.). On the scheme we have built (Fig. 1.2), these components are divided into two groups: psychological components are the components of the teacher's activity associated with the psychological patterns of assimilation of material by students, and didactic components are the components of the teacher's activity associated with the patterns of learning.



Fig.1.2. Structural scheme 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 can also be

divided into traditional and innovative components (Fig. 1.1.); on the other hand - special - methodological activity related to the specifics of mathematics, the content and features of mathematical activity. In accordance with the components of mathematical activity, special methodological activity includes teaching: mathematical concepts, mathematical sentences, proofs, solving mathematical problems, mathematical methods of cognition of reality, etc. The results of the analysis of the special didactic activity of a mathematics teacher in the educational process are presented by a block diagram in Figure 1.3.



Rice. 1.3. Structural diagram of the content of the concept "Special didactic activity of a mathematics teacher"

The holistic professional activity of a mathematics teacher in the educational process can be represented by the following block diagram (Fig. 1.4.), Which illustrates its integrative nature.



Rice. 1.4. Structural diagram of the content of the concept "Professional activity of a teacher of mathematics"

Conclusion

The article considers the analyzes of psychological, pedagogical and methodological studies of the problem of improving the professional training of a future teacher of mathematics in a pedagogical university. It shows that professional pedagogical activity is integrative, includes both traditional and innovative components of pedagogical activity.

Used Books

1. N.N. Manko Technological competence of the teacher. Moscow. Enlightenment. 2002
2. Pedagogical creativity Moscow. Enlightenment. 2000 г.
3. N.V. Kuzmina Pedagogical abilities Moscow. Enlightenment. 1990
4. A.K. Markov. Pedagogical activity Moscow. Enlightenment 1993
5. Khinchin A.Ya. On the educational effect of mathematics lessons. Improving the effectiveness of teaching mathematics at school. The book for the teacher comp. G.D. Glazer.- M: Enlightenment.- 1989.- from 18-37.
6. Zeer E. F., Shakhmatova O. N. Personality-oriented technologies of professional development of a specialist. - Yekaterinburg, 1999. - 245 p.
7. AA Ergashev Innovative and information technologies formation of students' knowledge, skills and abilities
8. Mansurov, M., & Akbarov , U. (2021). FLATTER OF VISCOELASTIC FREE OPEROUS ROD AT THE

- END. Scientific Bulletin of Namangan State University , 3 (3), 36-42.
9. Zhumakulov , Kh . K ., & Salimov , M . (2016). ABOUT THE METHODS OF CARRYING OUT AND THE STRUCTURE OF THE PEDAGOGICAL EXPERIMENT. Chief Editor , 80.
10. Esonov, M. M. (2013). Methodical techniques of a creative approach in teaching the theory of images. Vestnik KRAUNTS. Physical and Mathematical Sciences , 7 (2), 78-83.
11. Esonov, M. M., & Zunnunova, D. T. (2020). The development of mathematical thinking in geometry lessons through tasks for the study of image parameters. Vestnik KRAUNTS. Physical and Mathematical Sciences , 32 (3), 197-209.
12. Zharov, V. K., & Esonov, M. M. (2019). TRAINING STUDENTS OF MATHEMATICS IN SCIENTIFIC RESEARCH METHODS ON THE BASIS OF SOLVING A COMPLEX OF GEOMETRIC PROBLEMS. Continuum. Maths. Informatics. Education , (4), 10-16.
13. Esonov, M. M., & Esonov, A. M. (2016). Implementation of the methodology of creative approach in the classroom of a special course on the theory of images. Vestnik KRAUNTS. Physical and Mathematical Sciences , (1 (12)), 107-111.
14. Esonov, M. M. (2017). Constructing a line perpendicular to a given line. Vestnik KRAUNTS. Physical and Mathematical Sciences , (2 (18)), 111-116.
15. Esonov, M. M. (2016). PRACTICAL BASES OF TEACHING IMAGE METHODS TO SOLVING PROBLEMS IN THE COURSE OF GEOMETRY. In Theory and Practice of Modern Humanities and Natural Sciences (pp. 155-159).
16. Esonov, M. M. (2014). Designing the study of "Image Techniques" in the context of a creative approach to problem solving. In Theory and Practice of Modern Humanities and Natural Sciences (pp. 259-265).
17. Ergasheva, HM, Mahmudova , OY, & Ahmedova , GA (2020). GEOMETRIC SOLUTION OF ALGEBRAIC PROBLEMS. Scientific Bulletin of Namangan State University , 2 (4), 3-8.
18. Marasulova, Z. A., & Rasulova, G. A. (2014). Information resources as a factor of integration of models and methodologies. Vestnik KRAUNC. Fiziko-Matematicheskie Nauki, (1), 75-80.
19. Mamsliyevich, T. A. (2022). ON A NONLOCAL PROBLEM FOR THE EQUATION OF THE THIRD ORDER WITH MULTIPLE CHARACTERISTICS. INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7.429, 11(06), 66-73.
20. Mamsliyevich , TA (2022). ABOUT ONE PROBLEM FOR THE EQUATION OF THE THIRD ORDER WITH A NON-LOCAL CONDITION. INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH ISSN: 2277-3630 Impact factor: 7,429 , 11 (06), 74-79.
21. Muydinjanov , DR (2019). The Holmgren problem for the Helmholtz equation with the three singular coefficients. e-Journal of Analysis and Applied Mathematics , 2019 (1), 15-30.
22. Leviticus, Б. М. (1994). Асимптотический анализ функций от спейсигов.
23. Ergashev, A. A., & Tolibzhonova, Sh. A. (2020). The main components of the professional education of a teacher of mathematics. Vestnik KRAUNTS. Physical and Mathematical Sciences , 32 (3), 180-196.
24. Zunnunov, R. T., & Ergashev, A. A. (2021). Bitsadze-Samarsky type problem for mixed type equation of the second kind in a domain whose elliptic part is a quarter of the plane. In Fundamental and applied problems of mathematics and computer science (pp. 117-20).
24. Zunnunov, R. T., & Ergashev, A. A. (2016). A problem with a shift for a mixed-type equation of the second kind in an unbounded domain. Vestnik KRAUNTS. Physical and Mathematical Sciences , (1 (12)), 26-31.

25. Zunnunov, R. T., & Ergashev, A. A. (2017). Boundary value problem with a shift for a mixed type equation in an unbounded domain. In Actual problems of applied mathematics and physics (pp. 92-93).
26. Zunnunov, R. T., & Ergashev, A. A. (2016). A problem with a shift for a mixed-type equation of the second kind in an unbounded domain. Vestnik KRAUNTS. Physical and Mathematical Sciences , (1 (12)), 26-31.
27. Zunnunov , R.T., & Ergashev, A.A. (2016). PROBLEM WITH A SHIFT FOR A MIXED-TYPE EQUATION OF THE SECOND KIND IN AN UNBOUNDED DOMAIN. Bulletin KRASEC. Physical and Mathematical Sciences , 12 (1), 21-26.
28. Ergashev, A. A., & Talibzhanova, Sh. A. (2015). Technique for solving the Bitsadze-Samarsky problem for an elliptic type equation in a half-strip. In Theory and Practice of Modern Humanities and Natural Sciences (pp. 160-162).
29. Alyaviya, O., Yakovenko, V., Ergasheva, D., Usmanova, Sh., & Zunnunov, H. (2014). Evaluation of the intensity and structure of dental caries in students with normal and reduced function of the salivary glands. Stomatologiya , 1 (3-4 (57-58)), 34-38.
30. Marasulova, Z. A., & Rasulova, G. A. (2014). Information resource as a factor of integration of models and methods. Vestnik KRAUNTS. Physical and Mathematical Sciences , (1(8)), 75-80.
31. Rasulova, G. A., Ahmedova, Z. S., & Normatov, M. (2016). THE METHOD OF STUDYING MATHEMATICAL TERMS IN ENGLISH IN THE PROCESS OF LEARNING. Scientist of the 21st Century , 65.
32. Rasulova, G. A., Ahmedova, Z. S., & Normatov, M. (2016). EDUCATION ISSUES LEARN ENGLISH LANGUAGE IN TERMS OF PROCESSES. The 21st Century Scientist , (6-2(19)), 62-65.
33. Rasulova, G. (2022). CASE STADE AND TECHNOLOGY OF USING NONSTANDARD TESTS IN TEACHING GEOMETRY MODULE. Eurasian journal of Mathematical theory and computer sciences, 2(5), 40-43.
34. Ergasheva, H. M., Mahmudova, O. Y., & Ahmedova, G. A. (2020). GEOMETRIC SOLUTION OF ALGEBRAIC PROBLEMS. Scientific Bulletin of Namangan State University, 2(4), 3-8.
35. Muydinjonov, Z., & Muydinjonov, D. (2022). INFORMATION, COMMUNICATION AND TECHNOLOGY (ICT) IS FOR TEACHER AND STUDENT.
36. Muydinjonov, Z., & Muydinjonov, D. (2022). VIRTUAL LABORATORIES. Eurasian Journal of Academic Research, 2(6), 1031-1034.
37. Muydinjanov, D. R. (2019). Holmgren problem for Helmholtz equation with the three singular coefficients. e-Journal of Analysis and Applied Mathematics, 2019(1), 15-30.
38. Rahmatullaev, M. M., Rafikov, F. K., & Azamov, S. (2021). On the Constructive Description of Gibbs Measures for the Potts Model on a Cayley Tree. Ukrainian Mathematical Journal, 73(7), 1092-1106.
39. Rahmatullaev , M., Rafikov , F.K. , & Azamov , SK (2021). On constructive descriptions of Gibbs measures for the Potts model on the Cayley tree. Ukrains' kyj Matematychnyi Zhurnal , 73 (7), 938-950.
40. Petrosyan , VA, & Rafikov , FM (1980). Polarographic study of aliphatic nitro compounds. Bulletin of the Academy of Sciences of the USSR, Division of chemical science , 29 (9), 1429-1431.
41. Formanov, S. K., & Jurayev, S. (2021). On Transient Phenomena in Branching Random Processes with Discrete Time. Lobachevskii Journal of Mathematics, 42(12), 2777-2784.
42. Nosirov, S. N., Aroyev, D. D., Sobirov, A. A., & Umirzakova, M. B. (2022). Mutual Value Reflection and Automorphisms. Specialusis Ugdymas, 1(43), 2450-2454.

43. Nasirovich , NS, Davronovich , AD, & Abdurashid Ogli , SA (2021). SOME PROPERTIES OF THE DISTANCE BETWEEN TWO POINTS. *Journal of Ethics and Diversity in International Communication* , 1 (1), 54-56.
44. Sulaymanov , MMOGL (2022). ORGANIZING A LECTURE COURSE ON THE SUBJECTS OF PLANIMETRY USING THE GEOGEBRA SOFTWARE. *Central Asian Research Journal for Interdisciplinary Studies (CARJIS)* , 2 (6), 35-40.
45. PAIZIMATOVA, M. S., ABDUNAZAROVA, D. T., & SULAIMONOV, M. M. W. (2015). THEORY AND METHODS OF TEACHING MATHEMATICS AS AN INDEPENDENT SCIENTIFIC DISCIPLINE. In *FUTURE OF SCIENCE-2015* (pp. 389-393).
46. ABDUNAZAROVA, D. T., PAIZIMATOVA, M. S., & SULAIMONOV, M. M. W. (2015). THE PROBLEM OF PREPARING FUTURE TEACHERS FOR INNOVATIVE PEDAGOGICAL ACTIVITIES. In *Youth and the 21st Century-2015* (pp. 284-288).
47. Abdikarimov, R. A., Mansurov, M. M., & Akbarov, W. Y. (2019). Numerical study of the flutter of a viscoelastic rigidly clamped rod taking into account the physical and aerodynamic nonlinearities. *Bulletin of the Russian State University for the Humanities. Series: Informatics. Information Security. Mathematics* , (3), 94-107.
48. Abdikarimov, R. A., Mansurov, M. M., & Akbarov, U. Y. (2019). Numerical study of a flutter of a viscoelastic rigidly clamped rod with regard for the physical and aerodynamic nonlinearities. *ВЕСТНИК РГГУ*, 3, 95.