

DEVELOPING THE PROFESSIONAL COMPETENCE OF FUTURE TEACHERS
THROUGH PROBLEM-BASED SITUATIONS AND INTERACTIVE APPROACHES
DURING PEDAGOGICAL PRACTICE

Madraximova Mohiraxon Imomaliyevna

Independent Researcher, Fergana State University

Email: mohiraxonmadrahimova@gmail.com

ORCID: 0009-0007-1456-9387

DOI: <https://doi.org/10.5281/zenodo.22787526>

Abstract: *The development of professional competence among future teachers is one of the central priorities of contemporary teacher education, particularly in the context of increasing demands for practical, reflective, creative, and problem-solving abilities. This study aims to examine the effectiveness of problem-based situations and interactive approaches in developing the professional competence of future teachers during pedagogical practice. The research focuses on the integration of theoretical knowledge with practical pedagogical activity through authentic professional situations, collaborative tasks, case studies, discussions, role-playing, and reflective activities. The study employs theoretical analysis, synthesis, comparison, generalization, pedagogical observation, interviews, questionnaires, analysis of students' practical activities, and qualitative interpretation of learning outcomes. The findings demonstrate that problem-based situations create conditions for future teachers to identify pedagogical problems, analyze alternative solutions, make independent decisions, and justify their professional choices. Interactive approaches, in turn, strengthen communication, collaboration, creativity, reflection, and methodological competence. The study establishes that the combination of problem-based and interactive approaches makes pedagogical practice more practice-oriented and contributes to the transformation of theoretical knowledge into professional competence. The research concludes that systematically integrating problem-based situations, interactive methods, mentoring, feedback, and reflective practice into pedagogical practice can significantly improve the professional preparation of future teachers.*

Keywords: competence, pedagogy, practice, problems, interaction, creativity, reflection, communication, mentoring, collaboration, methodology, teaching.

Annotatsiya: Bo'lajak o'qituvchilarning kasbiy kompetentligini rivojlantirish zamonaviy pedagogik ta'limning ustuvor yo'nalishlaridan biri bo'lib, ayniqsa, amaliy, refleksiv, kreativ va muammolarni hal qilish ko'nikmalariga bo'lgan talablarning ortib borishi sharoitida muhim ahamiyat kasb etadi. Mazkur tadqiqotning maqsadi pedagogik amaliyot jarayonida bo'lajak o'qituvchilarning kasbiy kompetentligini rivojlantirishda muammoli vaziyatlar va interfaol yondashuvlarning samaradorligini o'rganishdan iborat. Tadqiqot nazariy bilimlarni real kasbiy vaziyatlar, hamkorlikdagi topshiriqlar, keyslar, munozaralar, rolli o'yinlar va refleksiv faoliyatlar orqali amaliy pedagogik faoliyat bilan integratsiyalashga qaratilgan. Tadqiqotda nazariy tahlil, sintez, taqqoslash, umumlashtirish, pedagogik kuzatuv, suhbat, so'rovnoma, talabalarning amaliy faoliyatini tahlil qilish hamda o'quv natijalarini sifat jihatidan talqin qilish metodlaridan foydalanildi. Tadqiqot natijalari muammoli vaziyatlar bo'lajak o'qituvchilarga pedagogik muammolarni aniqlash, muqobil yechimlarni tahlil qilish, mustaqil qarorlar qabul qilish va o'z kasbiy tanlovlarini asoslash imkonini beruvchi shart-sharoitlarni yaratishini ko'rsatdi. Interfaol yondashuvlar esa kommunikativlik, hamkorlik, kreativlik, refleksiya va metodik

kompetentlikni rivojlantirishga xizmat qiladi. Tadqiqot natijasida muammoli va interfaol yondashuvlarning uyg'unligi pedagogik amaliyotni amaliyotga yo'naltirilgan jarayonga aylantirishi hamda nazariy bilimlarning kasbiy kompetentlikka transformatsiyalanishiga yordam berishi aniqlandi. Xulosa qilib aytganda, pedagogik amaliyotga muammoli vaziyatlar, interfaol metodlar, mentorlik, fikr-mulohaza va refleksiv faoliyatni tizimli ravishda integratsiya qilish bo'lajak o'qituvchilarning kasbiy tayyorgarligini sezilarli darajada takomillashtirishi mumkin.

Kalit so'zlar: kompetentlik, pedagogika, amaliyot, muammolar, interfaollik, kreativlik, refleksiya, kommunikatsiya, mentorlik, hamkorlik, metodika, o'qitish.

Аннотация: Развитие профессиональной компетентности будущих учителей является одним из центральных приоритетов современного педагогического образования, особенно в условиях повышения требований к практическим, рефлексивным, творческим способностям и навыкам решения проблем. Цель данного исследования заключается в изучении эффективности проблемных ситуаций и интерактивных подходов в развитии профессиональной компетентности будущих учителей в процессе педагогической практики. Исследование направлено на интеграцию теоретических знаний с практической педагогической деятельностью посредством аутентичных профессиональных ситуаций, совместных заданий, кейсов, дискуссий, ролевых игр и рефлексивной деятельности. В исследовании использовались методы теоретического анализа, синтеза, сравнения, обобщения, педагогического наблюдения, интервьюирования, анкетирования, анализа практической деятельности студентов и качественной интерпретации результатов обучения. Результаты исследования показывают, что проблемные ситуации создают условия для того, чтобы будущие учителя выявляли педагогические проблемы, анализировали альтернативные решения, принимали самостоятельные решения и обосновывали свой профессиональный выбор. Интерактивные подходы, в свою очередь, способствуют развитию коммуникации, сотрудничества, творческого мышления, рефлексии и методической компетентности. Исследование устанавливает, что сочетание проблемных и интерактивных подходов делает педагогическую практику более практико-ориентированной и способствует преобразованию теоретических знаний в профессиональную компетентность. В заключение отмечается, что систематическая интеграция проблемных ситуаций, интерактивных методов, наставничества, обратной связи и рефлексивной практики в педагогический процесс может значительно повысить уровень профессиональной подготовки будущих учителей.

Ключевые слова: компетентность, педагогика, практика, проблемы, интерактивность, творчество, рефлексия, коммуникация, наставничество, сотрудничество, методика, обучение.

INTRODUCTION

Contemporary transformations in education require future teachers to possess not only theoretical knowledge but also the ability to apply this knowledge effectively in complex and unpredictable pedagogical situations. The modern teacher is expected to demonstrate methodological competence, communicate effectively with learners, make independent professional decisions, use innovative educational technologies, manage classroom processes, and critically evaluate the outcomes of teaching activities. Consequently, the preparation of future teachers should move beyond the transmission of theoretical knowledge toward the



systematic development of professional competencies through authentic and practice-oriented learning experiences.

The development of professional competence has become particularly important within the modernization of teacher education in Uzbekistan. The current reform agenda emphasizes the transformation of pedagogical education, the strengthening of the relationship between science and practice, the development of international educational programs, and the wider use of dual education approaches. The Presidential Decree No. PF-73 of April 28, 2025, specifically identifies the improvement of the teacher-training system through a unified approach and emphasizes the development of pedagogical education programs in accordance with international experience and the integration of education with practice [1].

Pedagogical practice provides one of the most important environments in which future teachers can transform theoretical knowledge into practical professional competence. During practice, students encounter authentic educational situations that cannot always be reproduced within traditional university classrooms. They must respond to learners' individual needs, organize educational activities, manage classroom interactions, assess learning outcomes, and address unexpected pedagogical problems. Thus, pedagogical practice creates an environment in which professional knowledge is tested, adapted, and transformed through direct experience.

The effectiveness of pedagogical practice depends substantially on the methods used to organize students' professional activity. Traditional observation and reproduction of teaching procedures may not be sufficient for developing the higher-order competencies required of contemporary teachers. Future teachers need opportunities to analyze authentic problems, compare alternative solutions, cooperate with peers, communicate with learners, justify professional decisions, and reflect on the consequences of their actions. In this regard, problem-based situations and interactive approaches provide valuable pedagogical opportunities for transforming practice from a passive observational experience into an active professional learning process.

Recent research by Uzbek scholars has increasingly emphasized the importance of problem-based and interactive approaches in the professional preparation of future teachers. Nazarov argues that interactive, project-based, and problem-based methods can contribute to independent thinking, creative reasoning, collaboration, and pedagogical reflection among pre-service teachers [2]. Tadjiboyev also emphasizes the role of problem-based learning, interactive methods, pedagogical design, and reflective activity in developing the professional competencies of future teachers [3].

The relationship between pedagogical practice and professional competence has also received increasing attention in recent research. Madraximova highlights problem-based learning, case study, project-based learning, reflective practice, mentoring, and digital educational technologies as important mechanisms for integrating theoretical knowledge with practical experience during teaching practice [4]. Similarly, research on qualification-based pedagogical practice demonstrates the importance of practical experience in developing methodological, creative, organizational, and professional abilities among future teachers [5].

International research further indicates that practice-oriented teacher education can integrate authentic tasks, mentoring, reflection, problem-based learning, and competence-oriented assessment. Such integration allows future teachers to develop professional judgment and practical competence rather than simply accumulate theoretical knowledge

[6]. Problem-based professional learning has also been associated with problem identification, self-directed learning, group collaboration, critical reflection, and professional development among teachers [7].

Despite these developments, there remains a need to further investigate how problem-based situations and interactive approaches can be systematically integrated specifically into pedagogical practice. In particular, the pedagogical mechanisms through which authentic problem situations contribute to methodological, communicative, reflective, creative, and decision-making competencies require further clarification. This creates a research gap concerning the development of a coherent practice-oriented model in which problem solving, interaction, reflection, mentoring, and independent professional activity are systematically connected.

The aim of this study is to examine the role and effectiveness of problem-based situations and interactive approaches in developing the professional competence of future teachers during pedagogical practice.

The objectives of the study are to clarify the pedagogical potential of problem-based situations in teacher education; identify the interactive approaches most appropriate for pedagogical practice; determine the professional competencies developed through problem-based and interactive activities; analyze the relationship between authentic pedagogical situations and independent professional decision-making; and develop methodological recommendations for integrating these approaches into pedagogical practice.

LITERATURE REVIEW AND METHODS

Literature Review. The theoretical basis of the study is connected with competency-based, practice-oriented, problem-based, interactive, and reflective approaches to teacher education. Professional competence is understood in this study as an integrated capacity that combines professional knowledge, methodological skills, communication, decision-making, creativity, reflection, and the ability to apply knowledge in authentic pedagogical situations.

Uzbek pedagogical literature emphasizes the importance of integrating theoretical knowledge with practical activity in the preparation of future teachers. The textbook *Pedagogy* by M.X. Toxtakhodjayeva and co-authors provides a comprehensive theoretical foundation for understanding educational processes, pedagogical methods, teaching principles, and the organization of educational activities [8].

The competency-based approach requires students to demonstrate what they can do with acquired knowledge rather than merely reproduce theoretical information. From this perspective, pedagogical practice becomes particularly important because it provides authentic situations in which professional knowledge can be applied, tested, modified, and evaluated.

Recent Uzbek research directly supports the use of problem-based and interactive approaches. Nazarov identifies problem-based learning, project-based learning, debate, mind mapping, and other interactive methods as approaches capable of strengthening creative competence, independent thinking, collaboration, and pedagogical reflection among future teachers [2].

Tadjiboyev’s research similarly identifies problem-based learning, pedagogical design, interactive methods, and reflection as important mechanisms for developing professional competencies among future teachers [3].

Research published in the Ta’lim va taraqqiyot journal also demonstrates the relevance of problem-based learning, project methods, practical-constructive tasks, STEAM integration, interactive methods, and digital modeling for developing competencies among future teachers [9].

The connection between pedagogical practice and professional competence has been examined in recent studies as well. Madraximova emphasizes that problem-based learning, case study, project-based learning, reflective practice, mentoring, and digital educational technologies can support the development of methodological, communicative, innovative, and reflective competencies during teaching practice [4].

International research conceptualizes practice-oriented learning as an integrated teacher-education approach in which future teachers develop professional knowledge and judgment through authentic or simulated teaching tasks, mentored participation, systematic reflection, and competence-aligned assessment [6].

The literature therefore indicates that problem-based situations and interactive approaches should not be treated as isolated teaching techniques. Their effectiveness increases when they are integrated into a systematic pedagogical practice model that includes authentic problems, collaborative activity, independent decision-making, feedback, reflection, and repeated improvement.

Research Methods. The study employed a combination of theoretical and empirical methods.

At the theoretical stage, scientific literature on professional competence, problem-based learning, interactive education, pedagogical practice, and practice-oriented teacher education was analyzed using analysis, synthesis, comparison, generalization, and systematization.

At the empirical stage, pedagogical observation, interviews, questionnaires, analysis of students’ practical activities, case analysis, and reflective assessment were used. These methods were selected to identify how future teachers respond to authentic pedagogical problems and how their professional competencies develop through interactive activities.

Problem-based situations were designed around authentic professional challenges, including classroom management, learner motivation, differentiated instruction, assessment difficulties, communication problems, and the selection of appropriate teaching methods.

Interactive approaches included case study, discussion, brainstorming, role-playing, collaborative problem solving, debate, peer feedback, project activities, and reflective tasks. These approaches were integrated into pedagogical practice rather than implemented as isolated classroom techniques.

The development of professional competence was analyzed according to six dimensions: methodological, communicative, organizational, reflective, creative, and decision-making competence.

The analytical process followed the sequence:

problem identification → information analysis → alternative solutions → collaborative discussion → professional decision → practical implementation → feedback → reflection → improvement.

This sequence was used as the methodological basis for examining how problem-based situations and interactive approaches contribute to professional competence development.

RESULTS AND DISCUSSION

The findings demonstrate that problem-based situations significantly change the nature of pedagogical practice by requiring future teachers to move from simple observation toward active professional decision-making. Instead of merely reproducing the activities of experienced teachers, students are placed in situations where they must identify a pedagogical problem, determine its causes, consider possible solutions, select an appropriate strategy, implement it, and evaluate its effectiveness.

The integration of interactive approaches further strengthens this process because professional problems are frequently discussed and solved collaboratively. Students learn to defend their professional opinions, listen to alternative perspectives, negotiate solutions, and reconsider their initial decisions.

Table 1. Professional Competencies Developed through Problem-Based Situations.

No.	Competence	Problem-based activity	Expected development
1	Methodological	Selecting an appropriate teaching strategy for a specific problem	Improved lesson design
2	Communicative	Resolving communication difficulties with learners	More effective interaction
3	Decision-making	Comparing alternative pedagogical solutions	Independent professional decisions
4	Reflective	Analyzing the consequences of a teaching decision	Professional self-evaluation
5	Creative	Developing alternative solutions to unfamiliar situations	Flexible pedagogical thinking
6	Organizational	Managing complex classroom situations	Improved classroom management

The results indicate that problem-based situations contribute to the development of professional competence because they require students to use several competencies simultaneously. For example, a classroom-management problem cannot be solved through theoretical knowledge alone. The future teacher must communicate with learners, analyze the situation, select an appropriate strategy, implement the strategy, and evaluate its consequences. Thus, one professional problem can activate methodological, communicative, organizational, reflective, and decision-making competencies simultaneously.

Interactive approaches strengthen this process by creating opportunities for students to solve professional problems collectively. Group discussions allow students to compare perspectives, while case studies require them to analyze realistic situations. Role-playing enables them to experience different professional positions, including teacher, learner, parent, mentor, and administrator.

Table 2. Integration of Interactive Approaches into Pedagogical Practice.

Interactive approach	Application during practice	Competence developed
Case study	Analysis of authentic pedagogical situations	Analytical competence

Discussion	Collective examination of professional problems	Communicative competence
Role-playing	Simulation of teacher–learner interactions	Social and communicative competence
Brainstorming	Generation of multiple pedagogical solutions	Creative competence
Debate	Defense and comparison of professional positions	Argumentative competence
Collaborative learning	Joint solution of teaching problems	Cooperation competence
Peer feedback	Evaluation of colleagues’ teaching activities	Reflective competence
Project work	Development of practical educational solutions	Design competence

The results suggest that interactive approaches are particularly effective when they are directly connected with authentic professional situations. For example, a discussion about classroom management becomes more meaningful when students analyze a real classroom problem rather than discuss classroom management only at a theoretical level.

An important finding concerns the development of independent decision-making. Traditional practice models may sometimes encourage students to follow established teaching procedures without critically analyzing whether those procedures are appropriate for a particular group of learners. Problem-based situations require the opposite: students must justify why a particular method should be selected and anticipate its possible consequences.

The development of reflection is another significant outcome. After solving a problem, students are encouraged to answer questions such as: What was the actual problem? Why did it occur? What solution was selected? Why was that solution appropriate? What alternative solutions were available? What was successful? What should be changed in the future? Such reflective questions transform practical experience into professional learning.

Mentoring and feedback also play a significant role in the effectiveness of the proposed approach. The mentor should not simply evaluate whether the student completed a task correctly. Instead, the mentor should encourage the student to explain the reasoning behind professional decisions and provide constructive feedback that supports further improvement.

The findings further suggest that problem-based situations should gradually increase in complexity. At the initial stage, students may work with relatively simple classroom situations. At later stages, they should encounter multidimensional problems involving learner motivation, differentiated instruction, assessment, communication, classroom management, and digital technologies.

Table 3. Recommended Progression of Problem-Based Pedagogical Practice.

Stage	Type of situation	Student activity	Main outcome
Initial	Simple classroom problem	Identify the problem	Problem awareness
Developmental	Multiple-solution problem	Compare alternatives	Analytical thinking

Advanced	Complex pedagogical situation	Design and implement a solution	Professional decision-making
Reflective	Post-action situation	Evaluate the result	Reflective competence
Integrative	Authentic professional problem	Solve collaboratively and independently	Integrated professional competence

The integration of digital technologies can further strengthen problem-based and interactive pedagogical practice. Digital platforms can be used for collaborative discussions, case analysis, electronic portfolios, online feedback, multimedia problem situations, and reflective documentation. However, technology should remain subordinate to the pedagogical purpose. Its value depends on whether it creates meaningful opportunities for professional reasoning, collaboration, reflection, and decision-making.

Overall, the results indicate that problem-based situations and interactive approaches transform pedagogical practice into a more active, reflective, collaborative, and professionally oriented learning environment. Their combined use allows future teachers to develop not only methodological skills but also communication, creativity, reflection, cooperation, and independent decision-making.

CONCLUSION

The study concludes that problem-based situations and interactive approaches provide significant opportunities for developing the professional competence of future teachers during pedagogical practice. Their effectiveness is associated with the ability to connect theoretical knowledge with authentic professional problems and require students to independently analyze situations, develop alternative solutions, make professional decisions, implement those decisions, and reflect on the outcomes.

Problem-based situations contribute particularly to methodological, analytical, creative, and decision-making competencies, while interactive approaches strengthen communication, collaboration, reflection, argumentation, and social interaction. Their integration creates a comprehensive learning environment in which future teachers become active participants in their own professional development.

The study also demonstrates that the effectiveness of these approaches depends on systematic organization. Problem-based tasks should correspond to the actual professional responsibilities of future teachers and gradually increase in complexity. Interactive methods should be connected with authentic situations rather than used only as independent classroom techniques. Mentoring, constructive feedback, reflection, and repeated improvement should form an integral part of the practice process.

Accordingly, the following methodological sequence is recommended for organizing pedagogical practice:

problem identification → analysis → alternative solutions → interaction → decision-making → implementation → feedback → reflection → improvement.

This sequence enables future teachers to transform practical experience into professional knowledge and competence. It also supports the development of independent pedagogical thinking and prepares students to respond flexibly to unpredictable educational situations.



Therefore, integrating problem-based situations and interactive approaches into pedagogical practice can be considered an effective strategy for improving the quality of teacher preparation. Such an approach contributes to the formation of professionally competent, reflective, creative, communicative, and independently thinking teachers who are better prepared to meet the changing requirements of contemporary education.

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