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## Enhancing Professional-Pedagogical Readiness of Higher Education Students: Mechanisms for Effective Teacher Preparation

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### ABSTRACT

This study explores the mechanisms necessary for the effective preparation of higher education students for professional-pedagogical activity within a rapidly changing educational landscape. Emphasizing the multicultural context of Uzbek society, the research identifies key challenges in fostering teacher creativity, autonomy, and responsibility. The article highlights the integration of innovative pedagogical methods, person-oriented education, diagnostic tools, and active learning strategies to enhance students' readiness for teaching roles. A quasi-experimental design compares traditional and experiential learning methods, with results indicating higher preparedness and practical performance among students engaged in project-based and simulation learning. The findings suggest that implementing advanced pedagogical experiences, structured innovation dissemination, and diagnostic evaluations contribute significantly to professional competence, thereby equipping future teachers to meet the evolving demands of education.

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## 1. INTRODUCTION

In today's multicultural and rapidly evolving Uzbek society, the role of the teacher has grown significantly, requiring the development of pedagogical strategies that emphasize independence, creativity, and professional responsibility (Yakubova, 2023). The education system must not only impart academic knowledge but also prepare future teachers to function as proactive, reflective, and adaptive professionals capable of responding to diverse classroom dynamics (Timperley & Alton-Lee, 2008). This transformation calls for the integration of innovative pedagogical models that focus on student-centered learning, independent decision-making, and creative engagement.

Higher education institutions are tasked with creating an open, supportive environment that fosters these competencies (Hénard & Roseveare, 2012). Central to this approach is the concept of person-oriented education, where students are viewed as active subjects in their learning journey, and teachers as facilitators who support their autonomy and personal growth (Vettori et al., 2022). Given the increasing influence of media, technology, and globalization, students often arrive in classrooms with varying levels of socialization, critical thinking, and information management skills. As a result, educators must cultivate methods that support differentiated learning, promote diagnostic evaluation, and encourage pedagogical experimentation (Cornali & Tirocchi, 2012).

To address these challenges, the training of future teachers must go beyond theoretical instruction to include practical mechanisms such as classroom simulations, project-based learning, mentorship, and continuous assessment. By creating a dynamic, innovative learning environment, teacher education programs can ensure that future educators possess the skills, mindset, and adaptability necessary to succeed in the modern educational landscape. This study seeks to analyse effective mechanisms for preparing higher education students for professional-pedagogical activity, drawing on empirical data, comparative analysis, and the implementation of innovation-driven practices.

## 2. METHODS

To explore effective mechanisms for preparing higher education students for professional-pedagogical activity, this study employed a comparative experimental design involving two groups of pedagogy students at Chirchik State Pedagogical University. A total of 49 participants were divided into a control group (26 students) and an experimental group (23 students).

The control group received instruction through traditional pedagogical methods such as lectures and seminars. In contrast, the experimental group engaged in practice-oriented activities including simulations, role-playing, project-based learning, mentorship with experienced teachers, and early teaching practice in secondary schools. These students were introduced to diagnostic methods, innovation implementation, and collaborative educational projects, with a focus on applying theoretical knowledge in practical scenarios.

Data collection methods included:

- (i) Academic performance: End-of-semester scores were recorded for both groups.
- (ii) Self-assessment: A structured questionnaire measured students' perceived preparedness for teaching on a 5-point Likert scale.
- (iii) Practical evaluations: Feedback was gathered from supervising schoolteachers during in-school practice sessions to assess students' real-world teaching competencies.

The data were analysed to compare the two groups' academic results, readiness scores, and practical teaching performance. Additionally, observations and interviews were used to

gather qualitative insights into the effectiveness of innovative pedagogical practices and how they influenced students' creative engagement, decision-making abilities, and overall professional growth. This mixed-method approach enabled a comprehensive understanding of the role that innovative, student-centered training mechanisms play in enhancing the readiness of future teachers.

### 3. RESULTS AND DISCUSSION

Accordingly, pedagogical goals in the higher education system are changing. The main goals of the higher education system are:

- (i) Creating a favorable pedagogical environment for the personal and professional development of the future specialist (Іванюк *et al.*, 2020);
- (ii) Creating an opportunity for the future teacher to determine his position and apply his knowledge in practice (Ribeiro & da Ponte, 2019);
- (iii) Teaching students not to master ready-made knowledge and models, but to choose the most suitable one from several options (Soboleva *et al.*, 2018);
- (iv) Forming future teachers as active organizers, assistants, collaborators, and creative individuals, etc (Thornhill-Miller *et al.*, 2023).

Today, the content of educational information in the higher education system is constantly changing and updating. This content should reflect knowledge aimed at solving general educational and personal and professional tasks of participants in the pedagogical process, rather than being based on the logic of science. A modern teacher should abandon the subject-based teaching method and switch to educational content that is convenient for students to acquire independent knowledge and express their characteristics (Daminova, 2023). To achieve this, a teacher must be a creative person because pedagogical technologies are changing rapidly. Accordingly, a teacher should act in their activities based on the concept of person-oriented education. Our research shows that the content of the process of pedagogical influence on students has changed (Akimov *et al.*, 2023). In a person-oriented education system, subject-subject relations are becoming increasingly important. The modern micro society in Uzbekistan creates a need to form an independent, dynamic, and rapidly developing personality. A person-oriented education system can educate just such a person (Tsvetkova *et al.*, 2021). To do this, the teacher should help students understand three important values of life in the process of pedagogical cooperation (Tirri, 2011):

- (i) The student to independently choose their life path;
- (ii) To be completely free in determining his personal life goals;
- (iii) To help him feel personal responsibility for his choice.

The solution to these pedagogical tasks is further complicated by the partial socialization of many students through modern media. Such students, being excluded from the attention of adults, are forced to independently search for information (Akimov *et al.*, 2023). However, it is observed that the skills of sorting this information are not sufficiently formed in them. As a result of the acceleration of the information flow, students are developing different levels of imagination, perception, and worldview. For most young people, the assimilation of society is carried out through self-cultural assimilation (Akimov *et al.*, 2023).

Today, pedagogical communication and communication tools are rapidly changing, which is reflected in the forms, methods, and means of pedagogical cooperation. In a person-centered education system, the teacher should strive to form a unique individuality and open the inner world of students through the educational process (Akimov *et al.*, 2023; Tsvetkova *et al.*, 2021). To do this, the teacher needs to have the skills to integrate scientific knowledge,

master secular and spiritual values, as well as adapt to the socio-cultural environment. For example, the teacher should use modern technologies in the lesson process, taking into account the needs of students, and create problem situations to develop their thinking skills. This approach forms the skills of the teacher to see problems, analyse evidence, and apply ideas in practice (Tirri, 2011).

Our research has shown that the above tasks are effectively solved only when the teacher and student participate in the educational process as active subjects. In person-centered education, the teacher should pay attention to the following areas (Hwang et al., 2019):

- (i) Creating learning situations that allow students to act as subjects of independent activity  
To achieve these goals, it is necessary to consistently develop the creative abilities of students in pedagogical universities. For example, students can be allowed to prepare independent projects and try innovative methods in education. Today, the requirements for teachers have changed, and they are forced to adapt to new tasks.
- (ii) The role and tasks of the teacher in an information society are also changing radically  
In the educational process, it is important to ensure equality between teachers and students, to create a favourable environment for the full assimilation of information. For example, using online platforms, a teacher can give students individual assignments and discuss their results. This helps students to naturally master knowledge and, in practice, forms the skills of independent management of their activities.

Today, knowledge models have changed; knowledge is being enriched and unified with new information. In this situation, the teacher is required not to teach students, but to help them acquire knowledge independently. Such demands on teachers further complicate their pedagogical work and expand the scope of their tasks. The information model of knowledge requires teachers, on the one hand, to apply existing knowledge models based on knowledge, and on the other hand, to master new, additional pedagogical functions, to acquire the skills of mediating between students and information in the learning process (Ertmer & Ottenbreit-Leftwich, 2010).

An analysis of research on pedagogical functions shows that existing approaches in pedagogy and psychology interpret the teaching, upbringing, and development function of the teacher as their main approach to the educational process (Ertmer & Ottenbreit-Leftwich, 2010).

It is established that pedagogical cooperation is fully ensured only as a result of the performance of certain functions by teachers. Many specialists have identified functions that occupy a key place in the pedagogical activity of a teacher. The successful performance of these functions requires the teacher to master knowledge in various fields (Brophy, 1988).

The implementation of advanced pedagogical experiences and achievements in educational theory into practice is becoming particularly relevant today. Many experiences are emerging and accumulating that are worthy of being implemented in a particular pedagogical activity of a teacher. However, our observations show that many teachers and future teachers have not yet formed a need to master existing experiences in practice. The skills and qualifications for selecting and analysing these experiences have not yet been sufficiently developed. In the process of practical activity, teachers do not pay enough attention to analysing their own experiences and the activities of their colleagues (Watzke, 2007).

Today, knowledge models are changing: knowledge is being enriched with new information and unified. In such conditions, teachers are required not to teach students knowledge, but to help them acquire knowledge independently. These requirements complicate the pedagogical activity of teachers and expand the scope of their tasks. The

information-based model of knowledge requires teachers, on the one hand, to rely on existing knowledge, and the other hand, to master new pedagogical functions, to develop the ability to mediate between students and information in the learning process. For example, a teacher can teach students to sort information on the Internet or guide them in solving problematic issues (Ertmer & Ottenbreit-Leftwich, 2010).

Research analysis shows that in pedagogy and psychology, the main functions of a teacher are interpreted as teaching, upbringing, and development. Pedagogical cooperation is realized only through the full implementation of these functions by the teacher. Experts emphasize the need to master knowledge in various fields to successfully implement these functions, which play an important role in the teacher's activities. For example, a teacher should take into account the individual characteristics of students and use teaching methods appropriate to them (Brophy, 1988).

The implementation of advanced pedagogical experiences and the achievements of educational theory in practice are of great importance today. Many experiences are emerging and accumulating that are worth introducing into the activities of teachers. However, our observations show that many teachers and future teachers have not yet formed the need to master these experiences. They have insufficiently developed skills in selecting and analysing experiences. For example, teachers often do not take the time to analyse their activities or the experience of their colleagues. This reduces their effectiveness in applying new methods (Brophy, 1988).

In practice, special training for teachers can be organized to solve this problem. For example, if teachers are allowed to try out modern educational technologies and discuss their results in seminars, they will enrich their experience. Teachers can also improve their work by recording their lessons on video and analysing them later. Such a practical approach will serve their professional development (Watzke, 2007).

Today, a teacher's pedagogical activity can be of a mass or advanced nature. Advanced pedagogical experiences remain limited, but they are enriched with new elements and develop educational practice and didactic theory. The teacher's role in creating advanced experiences and disseminating them among colleagues is important. Therefore, it is necessary to take into account subjective factors when implementing the main aspects and indicators of the experience in practice, evaluating its options, and popularizing it in the pedagogical community. When transferring and mastering experiences, special attention should be paid to their object and new aspects. Each teacher should emphasize their valuable and unique aspects when creating a new experience. For advanced experiences to become popular, the teacher must deeply master objective pedagogical theories (Brophy, 1988).

The diversity of pedagogical experiences is manifested through novelty and research. In this process, the teacher moves from practical activities to theoretical analysis and generalization. This approach serves to form innovative methods and approaches specific to the country's education system. The orientation of the teacher's activities to innovations allows him to apply the results of psychological and pedagogical research in practice. However, due to the untimely dissemination of modern information, these innovations do not reach the pedagogical community (Tsvetkova *et al.*, 2021). To popularize the results of research, it is necessary to specifically familiarize practitioners with them. By convincing teachers of the importance of new experiences, they will feel the need to apply these experiences in their activities. These innovations are conveyed through prompt consultations, seminars, trainings, speeches at conferences, and lectures to future teachers (Tirri, 2011).

Who is the populariser and promoter of new pedagogical ideas and technologies? This task is performed by individual teachers, educational institutions, professors, and teachers of

higher education institutions, and advanced teachers. The need to organize such groups is explained by the following circumstances:

Control group (control and evaluation of existing experience):

- (i) The author of a pedagogical innovation cannot fully assess the prospects and significance of his idea.
- (ii) Advanced teachers do not always think about popularizing their ideas, as this requires additional time and effort.
- (iii) The innovation is often not sufficiently scientifically and methodologically substantiated by the author.
- (iv) Authors encounter personal and colleague characteristics and obstacles in expressing their innovations.

Experimental group (creation and implementation of new experiences):

- (i) The creative group should perform the task of not only promoting and popularizing innovations, but also making adjustments to the activities of teachers, improving the professional knowledge and skills of future teachers.
- (ii) The group members are engaged in pedagogical monitoring, systematic selection of innovations, evaluation of new ideas and technologies, and enrichment of the experience of higher education institutions.

The author of the innovation himself may not participate in the activities aimed at implementation. This approach expands the capabilities of the creative teacher and directs them to a specific goal. As a result, the forces of the creators and popularisers of pedagogical innovations are concentrated in one point.

Pedagogical innovations have their dimensions, which serve to shape the creative activity of future teachers. These dimensions include: novelty, optimality, the ability to produce high results, and suitability for creative application in mass practice (Brophy, 1988).

The degree of novelty is reflected in the fact that innovative methods are equivalent to the results of scientific research and advanced practices. Teachers and future teachers need to understand the essence of novelty because a method that is new for one teacher may be old for another. For example, one teacher may be using a problem-based learning method for the first time, while another may have already mastered it. Therefore, innovations should be approached on a voluntary and individual basis. This is associated with the personal characteristics and psychological state of teachers. The degrees of novelty are divided into absolute (completely new), local-absolute (new in a certain place), conditional (partially new), and subjective (new only for the teacher) (Ribeiro & de Ponte, 2019).

The degree of optimality aims to achieve guaranteed high results for teachers and students with minimal effort and time. For example, using online platforms to assign individual tasks to students saves time and increases efficiency. Different teachers and students use this method in their activities and achieve unique results.

Effectiveness is measured by positive results in the teacher's work. This is assessed by technologicality, observability, and recording of results. For example, if a teacher uses a new method and tests the knowledge level of students, its effect will be clear. This measure is important in shaping the perception and worldview of students.

Massive application is determined by the widespread dissemination of innovations. However, often these methods remain limited due to technical equipment or the characteristics of teachers. For example, it is difficult to conduct interactive lessons in a school without modern projectors. After advanced teachers have tested new methods and achieved positive results, they can be popularized. Such methods are effective in developing the creativity of future teachers (Ribeiro & de Ponte, 2019).



Knowledge and criteria for evaluating pedagogical innovations help future teachers master creative activity. This includes the process from repeating simple knowledge to integrating scientific ideas and technologies into personal activities. For example, when students are assigned to carry out project work, they learn a creative approach (Ribeiro & de Ponte, 2019).

An analysis of the experience of general secondary schools shows that there is a lag in the introduction of pedagogical innovations. There are two main reasons for this:

- (i) Innovations are introduced into schools without undergoing expertise and pilot testing.
- (ii) Organizational, technical, and psychological preparation for their introduction is not provided.

In practice, to solve these problems, it is necessary to create an innovative environment in schools. This environment will reflect the attitude of teachers to innovation and eliminate old patterns. For example, seminars can be organized at school, and teachers can be taught new methods. In higher education, it is necessary to arm students with innovations, teach them to analyse and implement them. If this environment is not formed, students will not be aware of new things, and their creativity will not develop.

Diagnostic methods are important for studying the innovative activities of teachers. For example, observing and analysing teachers' teaching processes will identify their strengths and weaknesses. Equipping future teachers with modern diagnostic methods will increase their professional culture. For example, if students are given the task of recording and analysing their lessons on video, they will see their shortcomings and improve them. This creates favourable conditions for the creative activity of young teachers (Savchenko *et al.*, 2018).

The diagnosis should take into account both positive and negative aspects. For example, if a young teacher is shown his successes in the lesson (students' interest) and shortcomings (time management problems), he will work more effectively. This practical approach will serve their development.

The study revealed significant differences between the control and experimental groups regarding their readiness for professional-pedagogical activity. The data are summarized in **Table 1**.

Key findings include:

- (i) The experimental group outperformed the control group in average academic score, suggesting that practical, innovation-based learning methods led to better assimilation of theoretical content.
- (ii) Self-assessment results showed that students in the experimental group felt more prepared to teach, with a higher average readiness rating (4.1) compared to the control group (3.2).
- (iii) Practice evaluations from school supervisors revealed that the experimental group exhibited stronger practical teaching skills, receiving a higher average score (4.3 vs. 3.5).

These results demonstrate that the integration of project-based learning, simulations, and early school practice positively impacted students' confidence and performance in pedagogical contexts. The experimental group also showed greater creativity and initiative in designing and conducting lessons.

Quantitative findings were reinforced by qualitative observations. Students in the experimental group displayed enhanced communication skills, problem-solving abilities, and a deeper understanding of the learner-centered teaching model. Their lesson planning reflected more thoughtful integration of innovation and adaptability.

The results of the study emphasize the critical role of practical engagement and innovative teaching methods in enhancing the readiness of future teachers for professional-pedagogical

activity. The experimental group, which was exposed to project-based learning, simulations, and school-based teaching practice, outperformed the control group across all indicators. These findings align with modern pedagogical theory, which asserts that experiential learning bridges the gap between theoretical knowledge and real-world classroom application.

The increased academic performance and higher self-assessed readiness of the experimental group suggest that student-centered strategies foster not only knowledge acquisition but also confidence and teaching competence. Activities such as role-playing, collaboration with mentor teachers, and curriculum development projects enabled students to experience realistic teaching environments and develop critical thinking, adaptability, and communication skills (Ertmer & Ottenbreit-Leftwich, 2010).

Furthermore, the higher practice scores of the experimental group indicate that early exposure to classroom settings allows students to internalize professional responsibilities and refine their instructional techniques. This supports the argument that teacher education should integrate authentic teaching experiences from the early stages of training, allowing for continuous feedback and reflection.

The discussion also highlights the importance of diagnostic and evaluation tools in identifying students' strengths and areas for growth. When educators regularly assess and respond to the professional development needs of teacher candidates, they create a supportive environment that fosters creativity and continuous improvement.

Lastly, the success of the experimental group reinforces the relevance of innovation in pedagogy. Teachers trained through modern, practical approaches are more likely to implement advanced methodologies in their future classrooms, thus contributing to the overall quality and innovation capacity of the education system.

**Table 1.** Comparison of group results.

Indicator	Control Group (26 students)	Experimental Group (23 students)
Average Academic Score	78.4	82.6
Readiness (Questionnaire)	3.2 / 5	4.1 / 5
Practice Score (School Eval)	3.5 / 5	4.3 / 5

#### 4. CONCLUSION

The study demonstrates that equipping higher education students with practical, project-based experiences significantly enhances their readiness for professional-pedagogical activity. The experimental group, which engaged in simulations, real classroom teaching, and collaborative projects, showed greater academic performance, higher confidence in their teaching ability, and more favourable evaluations from school mentors compared to the control group trained through traditional methods. These findings affirm the necessity of integrating innovative, student-centered teaching strategies in teacher education programs. Emphasizing practical application, creativity, and independent decision-making empowers future educators to manage classrooms effectively, design meaningful instruction, and adapt to diverse learning environments. Additionally, the research underscores the importance of continuous diagnostic evaluation and targeted professional development as essential mechanisms for nurturing competent and reflective teachers. To ensure long-term success, educational institutions must systematically implement advanced pedagogical methods, strengthen partnerships with schools, and provide platforms for sharing best practices. By fostering innovation and supporting the creative potential of teacher candidates, the



education system can prepare a new generation of educators who are capable of leading transformative change in schools.

## 5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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