

OPPORTUNITIES FOR DESIGNING PEDAGOGICAL COLLABORATION IN PREPARING FUTURE TEACHERS FOR PROFESSIONAL ACTIVITY

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Abstract: This article examines the opportunities for designing pedagogical collaboration in the process of preparing future teachers for professional activity from scientific-theoretical and practical perspectives. It analyzes the organization of the educational process based on pedagogical collaboration in the modern education system, its forms and methods, as well as issues related to developing effective interaction between teachers and students. Through the design of pedagogical collaboration, the article substantiates the possibilities of developing future teachers' professional competencies, creative and critical thinking, independent decision-making, and reflective activity skills. In addition, the paper highlights ways to enhance the effectiveness of collaborative teaching by introducing innovative pedagogical technologies into the educational process. The research findings confirm the significant importance of learner-centered and collaboration-based approaches in the preparation of future teachers.

Keywords: future teacher, preparation for professional activity, pedagogical collaboration, instructional design, collaborative learning, professional competence, innovative pedagogical technologies, learner-centered education, reflective activity.

At the current stage of Uzbekistan's new development, within the process of reforms, the tasks of adopting a creative approach and organizing activities based on cooperation in every sector and newly restructured system are becoming increasingly relevant. This is because creative cooperation serves as one of the most important characteristics of a modernizing society. In this regard, along with "comprehensively supporting young people, ensuring their employment, creating conditions for acquiring modern knowledge and professions, and enabling the realization of their abilities and talents" [1], it is also essential for the government to create appropriate conditions to support these processes.

This paragraph aims to study scientific research related to the content of designing pedagogical cooperation in preparing future teachers for professional activity. For this purpose, it is expedient first to examine the essence and meaning of the concept of cooperation, its definitions in dictionaries, and interpretations developed by scholars, to systematize them, and to develop an individual approach.

Pedagogical cooperation refers to the joint activity of two or more participants in the pedagogical process.

Cooperative education involves the joint development of teachers and students during the educational process, their ability to understand one another, feel mutual closeness, and collaboratively analyze the stages of activity and the results achieved. It is of particular importance as it reflects advanced, developmental ideas.

The main directions of cooperative education include:

- organizing relationships based on educational cooperation while rejecting authoritarian pedagogical demands;
- applying an individual approach to students based on humanistic ideas;
- achieving professional and moral unity within the educational process.

The main idea of cooperative education is based on completing learning tasks together and learning collaboratively.



For pedagogical cooperation to be effective, to clearly address social demands, and to achieve the intended goals, it is necessary to design the teaching process, that is, to implement pedagogical technologies in the educational process. As noted, “the distinctive feature of the pedagogical technology method is that it designs a learning (assimilation) process that guarantees the achievement of the planned educational goals” [2].

What, then, is a project? What is meant by an educational project and the design of the teaching process?

The concept of a “project” refers to the practical development of an idea or a well-thought-out plan. Its main meaning lies in understanding a holistic image of a future pedagogical process. However, adherence to the project design method is essential.

The project method is a technology for identifying, defining, and developing problems in order to achieve didactic goals. Project activity is one of the most widely used forms of organizing work with students. Educational lesson projects can be explained in the form of an extended technological map [3].

In analyzing the quality problems of future teachers’ professional training, pedagogical design emerges as a methodological basis.

Pedagogical design is a system of interrelated sequential actions aimed at solving pedagogical problems or the step-by-step implementation of a pre-planned pedagogical process in practice. The problem of design has its own history of development. The term “pedagogical project” is often encountered in pedagogical works with the following meaning: in education, a project represents a set of formally documented pedagogical ideas, pedagogical processes, and technologies aimed at designing the education system, as well as programs for their practical implementation. In this context, according to Ye.S. Zair-Bek, design consists of developing ideas and an action program regarding what an existing situation should be transformed into. The developed ideas and action program constitute the product of design. Design as a professional activity initially emerged in technology, construction, and production, later spreading to economics, management, social spheres, and particularly pedagogical activity. According to V.E. Radionova, the multifaceted cultural-historical phenomenon of design stems from the fundamental essence of human life activity present in all areas of human practice [4].

For centuries, teachers have been required to make various decisions in their daily teaching and educational practice, relying primarily on their professional intuition developed through prior experience and individual planning of the consequences of such decisions.

Design is a mental transformation of the environment. A project is the result of activity within an information environment, while an object is the result of activity within a material environment. Based on this approach, Ya. Dietrich defines a project as a system of concepts that abstractly represents an object; a set of material characteristics obtained through integrative analysis, expressing creative or executive intent. In this sense, design is viewed as the selection of a particular method of action, and more specifically, as the logical basis of systematic activity.

Mastering the fundamentals of design is highly relevant because, first, this technology is widely applied at all stages of organizing the education system. Second, knowledge of the logic and technology of design enables effective implementation of analytical, organizational, and managerial tasks. Third, project-based technologies ensure the professional competitiveness of future teachers.

The success and effectiveness of teaching and educating future teachers depend on the extent to which the teacher has mastered project-based activity, as this activity enables the improvement of technological solutions according to situational needs and fosters the ability to develop new educational approaches and methods.



According to V.S. Bezrukova, project activity involves the preliminary development of the main components of the future activities of learners and teachers. The main element of any design object—whether a pedagogical system, pedagogical process, or pedagogical situation—is the activity of its participants. Therefore, the activities of the teacher and the learner are designed first. Design is one of the essential functions of any teacher (alongside organizational, cognitive, and communicative skills) and creates opportunities for technologizing the educational process in schools. The author also emphasizes the interrelation between pedagogical design and pedagogical technology: “through and during the design process, pedagogical technology is developed that ensures the development of participants in the pedagogical process” [5]. We agree with the view that pedagogical technology is the product of design.

The primary meaning of the term “project” is a holistic image of a future pedagogical process. Design, that is, creating a desired future model, is a concept that is more specific than planning. However, there is a certain distinction in their usage. Planning refers to current activities without fully considering significant changes, whereas when extensive creative and constructive work is involved, the term “design” is often used. Therefore, planning can be considered a stage of design, although in this case the relationship between these concepts becomes less distinct. Design and forecasting are not identical concepts: forecasting answers the question of what may happen in the future, whereas design answers the question, “What should happen, and how should it be?”

The concept of design can be regarded as synonymous with modeling; however, when design is viewed as a specially organized human activity, modeling—although extremely important—is considered only a component of the design process.

In developing instructional lesson designs, it is essential to define objectives correctly in advance. An objective is the product of achieving a predetermined result and represents the guaranteed acquisition of planned knowledge, skills, and competencies through the joint activity of the subjects of the educational process (teacher and student).

Defining educational objectives is one of the key factors in the technologization of the educational process and plays a central role in designing and effectively organizing instruction.

Project-based activity includes the following components: problem analysis; goal setting; selection of means to achieve the goal; searching for and processing information, its analysis and generalization; evaluation of obtained results and drawing conclusions.

The goals of a teacher’s design activity include:

- developing planning skills (the teacher’s ability to define objectives and identify the main stages of achieving them);
- forming skills of collecting and processing informational materials (the teacher must be able to select relevant information and use it effectively);
- developing analytical skills (creative and critical thinking);
- forming written reporting skills (ability to create a work plan, present information clearly, formalize explanations, and understand necessary literature and bibliographic sources);
- fostering a positive attitude toward work (initiative, adherence to planned schedules, and timely completion of tasks).

The level to which a future teacher masters design activity is determined by the degree of development of forecasting, planning, and modeling skills. Design activity is closely related to forecasting; therefore, forecasting requires special consideration.

Didactic forecasting is understood as the scientifically grounded anticipation of the development of didactic events. Unlike design, forecasting has a relatively stable content. Based on forecasting models, recommendations for intensifying the educational process are developed. Didactic forecasting also serves as a foundation for planning a teacher’s instructional activities.



Forecasting assumes the existence of a certain state or process or the conditions necessary for its emergence. In contrast, the design process involves creating a project of a future object that does not yet exist. Design includes forecasting or relies on existing forecasts.

The second concept is planning. Planning involves correlating a plan or project of an activity. A plan is understood as an intention, project, or task that requires the prior execution of a series of carefully considered actions and measures aimed at achieving a common goal [6].

Planning and design are often used as synonyms. From the perspective of purpose, there is little difference between a plan and a project, as both describe a future reality and are created for its implementation. However, in our view, design is a broader concept than planning. Planning is associated with defining specific actions and their sequence, whereas design substantiates and describes future objects or processes based on principles and demonstrates methods of implementation.

In a teacher's professional activity, planning occupies a significant place. During planning, the teacher carefully considers the forthcoming activity, pedagogically revises its content, seeks effective and productive forms and methods of organization, determines its structure, identifies interconnections among its components, and searches for optimal ways of integrating and interacting them.

I. P. Rachenko identifies several perspectives of planning. From a social perspective, planning pedagogical activity involves designing a holistic approach to the development of the individual and the collective. From a psychological perspective, a plan is a hierarchically structured mental process that determines the logical sequence of actions.

Planning pedagogical activity includes:

- a) evaluating the pedagogical situation from the perspective of the main goal;
- b) forecasting the process and outcomes, and defining objectives and tasks accordingly;
- c) developing a program of necessary measures and selecting the most effective methods, techniques, and tools;
- d) scheduling activities and determining their start and end times;
- e) determining forms and methods of monitoring and control.

P. E. Reshetnikov proposes several methods of planning pedagogical activity: program-targeted, complex-event-based, and system-technological planning.

System-technological planning includes the design of:

- leading ideas of educational activity or institutional development;
- curricula and syllabi;
- educational and professional tasks ensuring students' acquisition of professional experience;
- organization of the educational process;
- technologies for teaching individual courses;
- assessment criteria and diagnostic technologies for professional development;
- intermediate and final assessment technologies;
- material, financial, and personnel support;
- forms of preparing the pedagogical staff to solve educational tasks during institutional development [5].

The third concept is modeling. Modeling is a method of studying objects of cognition through their models, used to determine or improve the characteristics of real objects, events, and designed systems, as well as to optimize construction and management processes.

In higher education institutions, faculty members are required to plan and design the educational process step by step based on the principles of modern pedagogical technologies.



The introduction of pedagogical technologies into the educational process is a continuation of ongoing reforms. Without this, it is impossible to ensure effective education or to train competitive specialists capable of meeting labor market demands. It should be emphasized that pedagogical technology is not a recent phenomenon; every historical period has developed its own pedagogical technologies, evolving alongside human spiritual and material needs [7].

In modern education, advance planning and design of each instructional session are essential. This process requires adherence to the following stages:

- planning the educational process;
- designing the educational process;
- determining stages of collaborative activity with students;
- developing organizational and didactic support.

Thus, designing instruction involves defining overall educational goals, content, learning objectives, teaching and learning activities, assessment of learning outcomes, and corrective measures. To guarantee learning outcomes, instructional objectives must be clarified and lessons must be designed accordingly.

The educational process consists of three interrelated components: motives (M), student learning activity (LA), and teacher management activity (MA). Accordingly, the educational process can be expressed as:

$$EP = M + LA + MA.$$

Based on this formula, objectives are clarified, technologies are selected, activities are organized, and implementation is ensured—this constitutes instructional design.

In conclusion, improving future teachers' professional training and pedagogical mastery requires proper design, planning, and modeling of the pedagogical process. However, it is also necessary to consider teachers' personal characteristics—interests, needs, abilities, and intellectual potential—when designing instruction.

Therefore, we propose the following model:

Educational process = motives + learning activity + personal characteristics and qualities + management activity.

Taking this into account in lesson design is essential.

Despite the fact that developed countries pay great attention to instructional design based on modern educational technologies, several challenges remain in Uzbekistan, including:

1. Insufficient methodological resources and models for designing educational processes;
2. The need for professional development and dissemination of best practices among higher education faculty;
3. Material and technical support issues;
4. Increased analytical coverage of educational design practices through mass media;
5. Expansion of international cooperation to promote modern pedagogical technologies;
6. Limited scope of research on integrating pedagogical technologies into future teachers' professional training.

Ensuring a positive resolution to the above-mentioned issues guarantees the success of effectively applying modern pedagogical technologies in higher education institutions to improve the professional training of future teachers.

The following measures are considered appropriate for teaching through project-based learning:

- Creating specialized manuals and templates for project-based teaching, with particular attention to developing students' skills for independent work;



- Equipping the material and technical base of educational institutions with technical tools, classroom equipment, and devices for project-based teaching, including multimedia-equipped classrooms designed for 50–60 students;
- Recommending problematic situations to students, encouraging them to find suitable solutions, updating and enriching didactic materials with new information, and creating programs for using information technologies in laboratory sessions, ensuring students can independently utilize them;
- Providing departments with sufficient technical resources for preparing necessary educational and methodological materials, and further improving or retraining professors and instructors in computer literacy and modern pedagogical technologies;
- Thoroughly studying regional internal opportunities for the full application of educational technology ideas in the learning process;
- Achieving technical literacy among educational subjects;
- Establishing rapid information services.

According to pedagogical scholar Malla Ochilov, the most successful aspect of a pedagogical technology method is that it allows designing a learning-acquisition process that guarantees achieving the planned educational goals. Targeting goals, monitoring current results, and breaking learning material into segments are characteristics of organizing the learning process inherent in a repeatable (cyclical) education system. In other words, a repeatable learning cycle occurs, comprising:

- General definition of educational goals;
- Clarifying the general goal and converting it into specific learning objectives;
- Collection of learning activities;
- Assessment of learning outcomes.

Doctor of Pedagogical Sciences, Professor O. Roziqov emphasizes that the practical foundation of educational technology involves preparing an educational project and implementing it. According to him, when designing learning activities, the teacher should consider the educational goals, content, curriculum, textbooks, and assignments that guide creative activity, as well as the prior work of the teacher and students and the future planned activities. Attention should be given to ensuring that each topic in the curriculum and textbooks is fully mastered by the student, comparing knowledge levels with existing requirements. In designing the learning process, continuous monitoring of students' progress toward the set objectives is essential.

Technologically approaching any stage of designing a learning session allows:

- Setting clarified goals derived from the general objectives of the educational stage;
- Preselecting teaching forms, methods, and tools to achieve the clarified objectives;
- Basing on diagnosed learning outcomes.

A distinctive feature of designing the learning process is that learning outcomes are approached not only as knowledge, skills, and competencies to be reproductively mastered but also from a creative and research perspective. Thus, applying pedagogical technologies in the educational process—which includes clarifying educational goals, ensuring achievement of results according to objectives, fostering student independence, promoting active and creative work, and designing the learning process—is characteristic of pedagogical technology.

It should be emphasized that before the establishment of pedagogical technology, no clear and effective rules for designing the learning process existed in the education system. Teaching was primarily a routine activity. Pedagogical technology provided teachers with a broad scope to implement the design of the learning process, addressing this deficiency. As a result, scholars developed clear and sufficient regulations for designing teaching and learning processes. This also opened the path for creative advancement in pedagogy.



Another distinctive feature of pedagogical technologies is that planned learning goals are guaranteed to be achieved, designed, and implemented. In this process, a technological approach provides the teacher with a scheme that explains, demonstrates, and ensures the achievement of the planned outcome, leading to a repeatable learning cycle. Many scholars agree that this represents the teacher's periodically continued action algorithm, where repeated application of content to new sections ensures the learning process reaches its goals. The design stage in organizing education using pedagogical technologies requires the highest level of skill. Accordingly, the most qualified methodologist teams develop methodological materials based on the rules and principles of pedagogical technology. With such materials available, the teacher's primary role becomes organizational and advisory.

The main technological feature throughout all stages of the learning process is the ability to track the process toward achieving final results. Generally, pedagogical technology includes:

- Developing identifiable (clarifiable) learning objectives;
- Creating a taxonomy (comprehensive grouping) of learning objectives;
- Transforming learning objectives into control (test) tasks;
- Developing methods (rules and principles) to achieve objectives;
- Evaluating achievement of learning objectives.

Thus, designing the structure of the learning process involves:

- a) Defining educational goals and outcomes;
- b) Developing control tasks and evaluation criteria based on outcomes (through diagnostics);
- c) Applying stages of preparing the technological map of the learning session.

The teacher, aware of students' mastery of the material and the accuracy of their knowledge, can effectively equip them with new information. Therefore, the teacher's goal is to ensure that students understand, acquire, and can practically apply the learning material. This is considered the learning objective, which describes the expected outcome of the educational process. Since the learning process involves two participants, the teacher achieves the teaching objective while the student achieves the learning objective. Thus, learning objectives are the set of qualities and competencies that students should acquire at the end of the educational process and the standards set by the teacher for achieving them. In other words, the learning objective is the pre-determined intended outcome. Without knowing how to prepare the ingredients, cooking a dish makes no sense; similarly, an objective, activity, or work result must be designed, which is one of the pressing issues in today's education.

Clear design of learning objectives, awareness of students' mastery of knowledge during lessons, and actions based on student performance are key aspects of pedagogical technology.

The next stage in designing the learning process based on an acmeological approach to pedagogical technologies is developing a technological map of the session. A unique feature of this approach is designing each learning session and creating a technological map, which holds significant didactic importance. The technological map encompasses the lesson objectives, pedagogical tasks, relevant learning content, applied learning technologies, and the final outcome. Therefore, the acmeological approach to pedagogical technologies ensures an educational process that increases effectiveness, guarantees results, integrates teacher competence and technical resources, and organizes collaborative teaching.

Thus, the learning process is designed in advance. Based on the design, a lesson plan (technological map) is developed. The purpose of this is to plan the teacher's activities during the session, ensure the effectiveness of the lesson content, and deliver targeted knowledge to students.

Recent years have seen substantial changes in the content, composition, and technologies for training students in pedagogical higher education institutions, reflecting a focus on professional



formation of teachers. Humanizing, stratifying, and popularizing pedagogical education has made the continuous education system more flexible, adaptive, and open. As a result, students have clear opportunities to choose their own learning paths, meeting their professional needs and aspirations more fully.

Humanizing education is initially based on a learner-centered approach, representing the shift from literacy pedagogy to developmental pedagogy. Therefore, the learner-centered paradigm requires defining its essential conditions when designing the educational process.

The goal of learner-centered education is to support and develop mechanisms for self-management, self-direction, and self-determination, forming a personal and unique identity, and fostering dialogic interaction with people, nature, and culture. It also involves realizing one's potential, developing existing talents and abilities to the fullest, and applying them in practice, including ongoing self-development. Self-awareness involves aligning one's actions, attitudes, aspirations, and interests with those of others while preserving individual uniqueness. Defining one's position involves forming moral and ethical standing and understanding one's place in society and life.

In preparing future teachers for professional activity, their work must be designed in the following directions:

I. Mastery of the scientific, theoretical, and methodological foundations of the subject. Each discipline has its scientific, theoretical, and methodological basis, enabling teachers to understand and interpret reality and its developmental laws.

II. Understanding and ability to implement current goals and tasks of education. Teachers must understand educational goals and tasks to implement them effectively.

III. Independent organization of pedagogical activity. Teachers must be able to independently organize pedagogical work and create personal experiences to become skilled professionals.

IV. Approaching the pedagogical process from a creative perspective. Teachers must adopt a research-oriented, exploratory approach to their work to develop pedagogical expertise.

V. Utilizing educational and nurturing potential. Teachers should form students' scientific worldview, moral and ethical values, guide them toward labor and professional activity, and prepare them for socially useful work.

VI. Digital literacy of future teachers. In the 21st century, teachers must be computer literate, aware of modern technology, and capable of integrating technical and ICT tools into teaching.

VII. Positive attitudes toward one's work, colleagues, and the educational community. Mutual respect, assistance, collaboration, and clear communication are essential for professional mastery.

VIII. Planning pedagogical research, scientific-methodological, and practical training within pedagogy and methodology fields.

IX. Mastery of organizing extracurricular activities, effectively using students' free time, engaging them in socially useful work, and cultivating interest, initiative, and creativity.

In conclusion, designing education involves modeling, forecasting, planning, constructing, and structuring future learning processes. Designing the learning process is complex, requiring a system of practical, didactic, methodological, material, and other knowledge, as it reflects the real educational process virtually.

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