IMPROVING THE PROFESSIONAL SKILLS OF FUTURE TEACHERS THROUGH PROJECT-BASED LEARNING (PBL) IN THE CONTEXT OF GLOBALIZATION

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Abstract. *This article explores the impact of globalization processes on the education system and the theoretical foundations of enhancing the professional competence of future teachers. The research analyzes the unique characteristics and functions of pedagogical collaboration, along with modern requirements for the design of the educational process. It substantiates the methods for developing students' professional and personal qualities through Project-Based Learning (PBL), emphasizing the effective integration of information and communication technologies (ICT) and the organization of professional activities on a scientific basis. The article serves to strengthen the methodological preparation of future educators.*

Keywords: *project-Based Learning (PBL), professional skills, pedagogical collaboration, globalization and education, professional and personal qualities, information and communication technologies (ICT), evidence-based practice, educational project.*

Introduction. In the context of contemporary globalization, the significantly increasing demands placed on the cognitive activities of future teachers prioritize the development of their thinking-based skills. The core philosophy of the education model presented at the World Economic Forum, centered on the “4Cs: Critical Thinking, Creativity, Communication, and Collaboration” demonstrates the prerogative nature of these competencies in countries achieving high educational performance. This, in turn, necessitates the development of effective technologies for teacher training and continuous professional development, based on creating opportunities for future educators to design their activities, perform conscious analysis, enhance their cognition, and realize their creative potential.

A pedagogical goal is adopted as a pedagogical task during the preparatory stage of organizing the educational process. The success of pedagogical activity depends on the simultaneous and sequential comprehension of the essence of various tasks. Specifically, in vocational teacher training, it is crucial to categorize pedagogical tasks into general (common to all pedagogical activities), staged (reflecting the essence of specific phases of the pedagogical process), and specialized (situational and emergent), while ensuring students are prepared to execute them. Timely recognition and fulfillment of these tasks foster a correct professional approach. In an era where the teaching methodology of any discipline is inseparable from the pedagogical sphere, achieving these goals and tasks helps explain the underlying drivers of active teaching and learning processes.

Indeed, today's effective education is oriented toward learning outcomes rather than time spent. The traditional educational system, focused on memorizing and retaining terms, facts, and concepts, is yielding its dominance to student-centered learning that prioritizes cognitive activation, practical skill development, and independent activity. Consequently, it is becoming increasingly urgent to create an educational environment that facilitates a competency-based approach, providing a solid foundation for preparing graduates who possess critical and creative thinking and can fully realize their intellectual potential.

The issue of activating the learning and cognitive activities of students has been studied, interpreted, and theoretically substantiated by various researchers through the lens of their respective eras and scientific paradigms. Over time, specialized research has focused on modernizing and adapting the forms, methods, and tools of instruction to the age and individual characteristics of learners, as well as creating specific pedagogical and psychological conditions for education.

In recent years, as a result of such research – particularly in international methodologies – a series of instructional principles (continuity, individualization and differentiation, modularity, variability, reflexivity, scientific-methodological supervision, electivity, and integrativity), approaches (competency-based, innovative, creative, student-centered, communicative, and cognitive), and instructional models (problem-based learning, person-centered learning, inquiry-based learning, active learning, and Project-Based Learning) have been successfully implemented. These advancements are uncovering new horizons in educational development.

Research Objective. This work presents the role of Project-Based Learning (PBL) in a teacher's professional activity, an analysis of national and foreign scientific research, an original definition of PBL, and its structural elements.

A Brief Analysis of Scientific Research on the Topic of Investigation. Based on the objective of our research, we analyzed the essence of Project-Based Learning (PBL) and its study in the educational methodologies of our republic and foreign countries as a source of pedagogical inquiry.

In our republic, one can witness numerous investigations into design technology within field-related research. In particular, U. Tolipov noted that "designing the pedagogical process is the creation of a project that serves to integrally express the general essence of pedagogical activity organized on the basis of the project-content-activity triad. In projects, analytical activities carried out sequentially by the pedagogue and ending with the diagnosis are manifested: creative activities such as foresight and design". Researcher M.H. Mahmudov and several scholars, in developing the problem of design in the theory of pedagogical education, put forward views expressing its inseparable connection with the concept of "activity" and that it consists of creating tentative variants of activities and diagnosing their results. Specifically, while applying pedagogical technologies in education, Professor U. Tolipov dwells in detail on each task and stage of pedagogical process design technology, the role of the teacher, the laws, principles, and strategies of educational process design, and the levels and essence of design in general secondary education.

A.R. Hamroyev, who worked on designing the creative activity of students in mother tongue education, emphasizes the need to clarify the content of activity organized mainly by an individual student and a group of students, rather than just the pedagogue's activity or the content and possibility of using pedagogical tools; the research conducted by the scholar is aimed at designing mother tongue lessons.

Scholar B.B. Mamurov, who researched the system of developing educational process design skills in future teachers based on an acmeological approach, points out that future teachers must possess the knowledge and skills required to effectively design the educational-training process in schools. We have improved them as follows:

- Knowledge and concepts related to designing the educational process;
- Knowledge related to improving the pedagogical process project;
- Understanding the specific characteristics and functions of pedagogical collaboration;
- Requirements for the educational-training process project;
- Ways to improve professional mastery;
- Methods for developing pedagogical activity;
- Mastery of professional and personal qualities;
- Knowing the ways to use the possibilities of information and communication technologies in the educational-training process;
- Having the skill to apply ways of organizing their professional activities on a scientific basis;
- Having the skill of systematization, modeling, construction, bringing to a single standard, and creating secondary didactic projects in designing the educational process based on an acmeological approach.

The mentioned ideas regarding design and design technology have penetrated and clarified the structural parts from planning the general pedagogical process and designing education to private design – the lesson process that brings about educational cognition. Although the scientific research of the researchers and scholars whose views were analyzed above served as a main factor in the development of educational practice, the Project-Based Learning expressed in our research objective differs by being based on foreign methodology and having distinct characteristics. Such analyses can be found in the research conducted by G. Fayzullayeva regarding the continuous professional development of teachers. In her opinion, “Project-Based Learning (PBL) is an educational approach that has been formed, developed, and improved over the years, acquiring a new form and content, and increasing its level of vitality”. She also notes that types of Project-Based Learning emerging at the level of small projects can distract the teacher, researcher, and learner from looking at it more deeply and seriously. She analyzes the comparative table published on the electronic learning platform of TeachThought – an organization dedicated to innovation in education through the growth of outstanding teachers founded by Amy Mayer – and expresses an authorial attitude toward them, researching the common and distinct aspects of a “project” and “Project – Based Learning”.

Researcher N. Yusufjonova, who dealt with the problems of assessing students' knowledge, in her article "Problems of Introducing Teaching and Assessment Based on the PBL Strategy into the Higher Education System," substantiates the necessity of radically renewing control types through scientific-pedagogical principles related to changing the assessment system. She argues for redeveloping curricula based on the PBL (Project – Based Learning) strategy currently being implemented in leading foreign higher education institutions, Bloom's Taxonomy, and dynamic educational criteria that do not recognize the boundaries of lesson hours, classrooms, and disciplines. According to the researcher, the main innovation of Project – Based Learning in organizing and assessing control work is determined by its impact on the human factor. In this, the student's attitude, opinion, and worldview toward themselves, their teacher, and their classmates change. Additionally, it can be seen that the final target of the Project-Based Learning strategy

consists of practice and sharing what one has learned with others. Assessment in the new way is recognized not as the end point of the educational process, but as a means of directing students to the next stages of cognitive processes.

During our research, it was considered important to more broadly clarify the theoretical-methodological foundations of Project-Based Learning, which is recognized today as a foreign methodology, to analyze its state in practice, and to dwell on the main content expressed in the recent research of foreign scholars regarding Project-Based Learning. Based on these, it was deemed essential to create an authorial definition, express an attitude, and further clarify the distinct sides of Project-Based Learning.

Thus, Project-Based Learning reflects a variable classroom-lesson approach designed on the basis of lifelike, real problems, where the acquisition of deep knowledge is guaranteed through active learning. As acknowledged by Yasseri Dar, Patrick M. Finley, Blayne E. Mayfield, David W. Davis, and others, PBL is built on the core of an educational style based on active learning and inquiry, as opposed to relying on paper, memorization, and teacher-led instructions; it shows a smooth way of acquiring knowledge by presenting clear evidence or asking questions, posing problems, and proposing their scenarios.

John Larmer, John Mergendoller, and Suzie Boss state that Project-Based Learning is a powerful teaching approach, through the implementation of which the following are achieved:

- It motivates students to acquire knowledge;
- It prepares pupils and students for higher education, careers, defining professional growth points (planning an individual professional trajectory), and socially active citizenship;
- It helps pupils and students to perform tasks well that require demonstrating deep knowledge and thinking abilities (in our opinion, fulfilling the social order for the teacher);
- It provides teachers with the opportunity to teach in a more satisfying manner;
- It provides educational organizations with new ways of communicating and connecting not only with parents and other communities but with the whole world.

According to Thom Markham, “PBL integrates knowing and doing; students acquire core knowledge, skills, and competencies from the curriculum being studied, and as a result, they apply what they know in practice to solve real-life problems and achieve significant results. PBL focuses education on the student, not the curriculum; it uses digital tools to produce high-quality collaborative products and rewards students with intangible wealth such as global progress, creativity, emotional stability, resilience, and empathy required in today's world. Of course, these cannot be taught outside of textbooks, but they must be activated through experience,” he describes.

As a result of studying and observing the "https://www.pblworks.org/" electronic platform organized by the Buck Institute for Education – which prepares students for the real reality in their profession based on Project-Based Learning and is designed to provide methodological assistance to teachers – and analyzing the work carried out, we improved the comparative table reflecting the distinct aspects of the concepts "doing a project" (conceived by the teacher, directed at their clear instructions and diagnosis) and "project-based learning" (real-life occurrences in professional life, where the achieved or created product/presentation is necessary for others to use in practice) with an authorial attitude (Table 1):

Table 1. Comparative table of the content of “Doing a Project” and “Project-Based Learning”

Doing a Project (Traditional)	Project-Based Learning (PBL)
Executed within a strictly defined short period.	Long-term (conducted over a week, a month, or an entire semester).
An additive unit or supplement to instructions, used to activate a traditional program.	A project created based on an integrated manual (the Project is the core unit).
Based on a rigid direction strictly defined by the teacher.	Driven by student proposals and inquiry.
Aimed at a pre-diagnosed result (product).	Centered on the result (product) as well as the teaching and learning throughout the process.
In many cases, not directly linked to required standards and competencies.	Aligned with academic standards and skills that ensure success.
Can be performed individually or in groups, within the auditorium or as home assignments.	Executed in collaboration with students; it also incorporates teacher guidance determined by real-time classroom dynamics during implementation.
Remains within the boundaries of the auditorium or the school environment.	Content (context) and programs are created for the needs of the real world.
The final result of the project is shown only within the auditorium or classroom.	Project results are shared with the class and a relevant public audience.

The following definition can also be found on this electronic platform: Project - Based Learning (PBL) is a teaching method in which students work for an extended period to investigate and respond to an authentic, engaging, and complex question, problem, or challenge, thereby acquiring deep knowledge and essential skills.

According to the views of researcher and trainer Terry Heick on his blog (TeachThought), there are three primary types of Project-Based Learning:

1. Challenge-Based Learning / Problem-Based Learning
2. Place-Based Education
3. Activity-Based Learning

Challenge-Based Learning is an engaging interdisciplinary approach to teaching and learning that encourages students to use the technologies necessary in their daily lives to find solutions to real-world problems existing in their homes, schools, and communities. According to the scholar, if any project is aimed at solving a specific challenge and leads to development through measurable results, it manifests as authentic Project-Based Learning. Place-Based Education (or ethnically grounded education) immerses students in local heritage, cultures, landscapes, opportunities, and experiences. This type of instruction serves as a foundation for studying language arts, mathematics, social sciences, and other disciplines, emphasizing learning through community participation in local school or service projects. Activity-Based Learning is designed primarily for hands-on, practical exercises.

Researcher Lawrence Haywood, who applies Project-Based Learning in working with students across various school subjects, notes that students solve the large-scale problem posed in a project step-by-step. During this process, "pauses" or minor failures may occur at each stage.

Every encounter with failure helps students identify their areas of ignorance, recognize their mistakes, and understand what actions are required for correction. Thus, PBL is a natural process in schools that creates a need to revisit and learn core knowledge. He emphasizes that a classroom and its students cannot be transitioned to PBL instantaneously; the teacher should start at the simplest level and gradually move toward large-scale, long-term projects.

Teamwork is a vital criterion in Project-Based Learning. From this perspective, orienting program formation and process organization toward this criterion creates a foundation for developing collaboration, defining the responsibility of each participant, correctly distributing time, fostering a critical attitude toward every element, creating a necessity for thinking, proposing independent solutions to problems, and strengthening openness to the opinions of teammates. Another positive aspect of PBL is that since conducting research, designing, planning, implementing, and correcting are integral components, students gain the opportunity to test their skills and competencies through experience.

Discussion and Authorial Definitions

The investigations and analyses conducted during the research, as well as the hypothesis put forward, allowed for the formulation of an original definition of Project-Based Learning technology:

Project-Based Learning is a results-oriented technology that clarifies the pedagogical-psychological characteristics of developing the creative thinking of future teachers, reveals didactic possibilities, and functions through driving questions, sustained effort, deep inquiry, authenticity, student voice and choice, reflexivity, and critical thinking.

Key Elements of PBL

- Challenging Problem or Driving Question: Constructing a meaningful problem to be solved or a question that requires an answer.
- Sustained, Deepening Inquiry: Engaging in an extended process of asking questions, finding resources, and applying information.
- Authenticity: Incorporating real-world contexts, tasks, tools, standards, interactions, personal concerns, interests, and problems.
- Student Voice and Choice: Making certain decisions regarding the project, analyzing them, testing their functionality, creating, and expressing ideas.
- Reflection: Thinking about the effectiveness of learning, inquiry, and project activities, the quality of student work, emerging obstacles, and strategies to overcome them.
- Critique and Revision: Providing mutual feedback to improve existing processes and products, consulting with the teacher, and perfecting the work.
- Public Product (Presentation): Making the project transparent by sharing, explaining, or presenting it to others.
- The experience inherent in Project-Based Learning aids future teachers in avoiding potential problems in developing creative thinking while utilizing knowledge. It allows PBL to be evaluated as a positive pedagogical phenomenon characterized by efficiency and effectiveness.

Conclusions

- In the process of transformation into a knowledge-based society, educational institutions lose their status as the sole source of information; instead, a person's worldview, talent,

qualifications, adaptability to change, ability to extract necessary information from various sources, and cognitive capabilities become priority factors.

- Project-Based Learning cannot be implemented within the boundaries of a single lesson; it encompasses the entire process related to instruction, including the formulation of learning objectives, planning, the correct selection of content, forms, and tools, assessment, scientific-methodological support, and the provision of flexible timelines.
- In the PBL process, the teacher moves away from the center; their role shifts from being the primary provider of knowledge to becoming a facilitator, consultant, guide, and organizer of feedback, creating conditions for student independence, cooperation, freedom, and cognitive development.
- The priority of teamwork in the process allows students to develop independent thinking, decision-making, the ability to justify choices and explain them to teammates, the presentation of clear evidence, constructive communication, active listening, respect for others' opinions, adaptability, and communicative skills.

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