# DEVELOPING RESEARCH SKILLS OF FUTURE PRIMARY SCHOOL TEACHERS THROUGH PROJECT-BASED LEARNING

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**Abstract:** *The article examines the role of Project-Based Learning and related student-centred approaches in developing research skills of future primary school teachers. In modern education, teachers are expected to possess not only subject knowledge but also research competence, critical thinking, and problem-solving abilities. Project-Based Learning enables students to work independently, collaboratively, and creatively on real-life problems over an extended period of time. The study analyses the main features, advantages, and challenges of Project-Based Learning, as well as its relationship with Problem-Based Learning, Task-Based Learning, and Inquiry-Based Learning. The findings suggest that these approaches effectively contribute to the formation of scientific research skills in future teachers.*

**Keywords:** *Project-Based Learning, research skills, future primary school teachers, inquiry-based learning, student-centred approach.*

## INTRODUCTION

In recent years, the preparation of future primary school teachers has required a shift toward student-centred and research-oriented teaching approaches. Modern teachers are expected to analyse educational problems, conduct small-scale research, and apply innovative teaching strategies in their professional practice. Therefore, developing research skills during pre-service teacher education has become a significant pedagogical task.

Traditional teacher-centred methods often limit students' independence and critical thinking. In contrast, Project-Based Learning (PBL) encourages learners to take responsibility for their own learning and engage in scientific inquiry [1]. This article focuses on the effectiveness of Project-Based Learning and related approaches in forming research skills among future primary school teachers.

Project-Based Learning and Its Key Features

Project-Based Learning is a teaching approach in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic and complex problem or question [2]. According to Larmer, Mergendoller, and Boss (2015), PBL sets high standards for student engagement and academic rigor [1].

The key features of Project-Based Learning include:

- Real-life problem: Students address authentic problems related to real educational or social contexts.
- Interdisciplinary integration: Knowledge from several disciplines is combined within a single project.
- Teamwork: Students work collaboratively, with each member having specific roles and responsibilities.

●Independence: Learners analyse problems, make decisions, and develop solutions independently.

●Final product: Students present their results in the form of presentations, videos, articles, posters, or mock-ups.

These features create favourable conditions for developing research skills such as data collection, analysis, critical evaluation of information, and presentation of results.

Comparison with Other Learning Approaches:

Problem-Based Learning

Problem-Based Learning focuses on presenting students with a problem rather than a fixed project.

Students are encouraged to explore multiple solutions, formulate hypotheses, and justify their decisions.

This approach strengthens analytical thinking and scientific reasoning, which are essential components of research competence [4].

Task-Based Learning

In Task-Based Learning, the teacher organizes the learning process through meaningful tasks.

While completing tasks, students independently acquire new knowledge and skills. This process helps learners develop information-searching abilities and practical research skills.

Inquiry-Based Learning

Inquiry-Based Learning is based on questioning, observation, and investigation. In this approach, the teacher acts as a facilitator rather than the main source of knowledge. Students generate questions, conduct observations, and share their findings. This approach improves critical thinking, responsibility, and communication skills, which are vital for future primary school teachers [5].

Advantages and Challenges of Project-Based Learning

Project-Based Learning has several advantages, including the development of independent learning, creativity, collaboration, and motivation. Students learn how to find information on their own and apply it in practice [3].

However, this approach also has certain challenges. PBL requires more time for planning and implementation, and some students may demonstrate passive behaviour if tasks and responsibilities are not clearly defined. Despite these limitations, effective organization and assessment strategies can ensure successful learning outcomes.

Conclusion

Project-Based Learning and related inquiry-oriented approaches play an important role in developing research skills of future primary school teachers.

By engaging students in real-world problems, collaborative activities, and independent inquiry, these approaches foster deep understanding and essential scientific skills.

Integrating Project-Based Learning into teacher education programs contributes to the formation of competent, reflective, and research-oriented primary school teachers.

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