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MAKTABGACHA VA MAKTAB TA'LIMI VAZIRLIGI

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MUNDARIJA СОДЕРЖАНИЕ CONTENTS

MUNDARIJA

PEDAGOGICAL MODEL AND STAGES OF TEACHING SUBJECTS THROUGH A PROJECT-BASED APPROACH

Bannayev Qosimjon
NamDTU, mustaqil tadqiqotchi

Abstract: This study examines the application of Project-Based Learning (PBL) in teaching academic and technical subjects. It highlights the theoretical foundations, methods, and stages of implementation. By synthesizing research from various sources, the article identifies essential conditions, stages, and expected outcomes of applying PBL, particularly in technical universities. The findings indicate that PBL fosters the development of key skills, enhances students' motivation and creativity, improves collaboration, and prepares them for professional careers.

Key words: PBL, technical subjects, motivation, creativity, traditional teaching method.

Annotatsiya: Ushbu tadqiqot akademik va texnik fanlarni o'qitishda Loyihaviy yondashuv (PBL)dan foydalanish imkoniyatlarini tahlil qiladi. Unda nazariy asoslar, metodlar hamda amalga oshirish bosqichlari yoritiladi. Turli manbalardagi tadqiqotlarni birlashtirish orqali maqolada PBLni, ayniqsa texnik oliygohlarda qo'llash uchun zarur shart-sharoitlar, bosqichlar va kutiladigan natijalar ko'rsatib berilgan. Tadqiqot natijalariga ko'ra, PBL talabalarda asosiy ko'nikmalarni rivojlantirish, motivatsiya va ijodkorlikni oshirish, hamkorlikni kuchaytirish hamda kasbiy faoliyatga tayyorlanishda samarali vosita bo'lishi aniqlangan.

Kalit so'zlar: PBL, texnik fanlar, motivatsiya, ijodkorlik, an'anaviy o'qitish usuli.

Аннотация: В данном исследовании анализируется использование проектного обучения (PBL) при преподавании академических и технических дисциплин. Описаны теоретические основы, методы и этапы реализации. Объединяя результаты исследований из различных источников, статья выделяет необходимые условия, стадии и ожидаемые результаты применения PBL, особенно в технических вузах. Результаты показывают, что PBL способствует развитию у студентов ключевых компетенций, повышает мотивацию и творческий потенциал, улучшает сотрудничество и готовит их к будущей профессиональной деятельности.

Ключевые слова: PBL, технические дисциплины, мотивация, творчество, традиционный метод обучения.

INTRODUCTION

In today's world, higher education needs to move beyond just giving information and focus more on teaching skills. Project-Based Learning (PBL) is a good way to do this because it combines what students learn in class with solving actual problems. Experts such as Dewey (1938) and Kilpatrick (1918) have noted that people learn best when they work on meaningful projects that resemble real-life situations.

In Uzbekistan, significant reforms are being implemented in higher education, especially in technical and agricultural fields. The goal is to introduce new teaching methods that align with global practices (Ministry of Higher Education of Uzbekistan, 2021). This article presents a teaching plan and stages for applying PBL that can be adapted to different subjects in technical universities.

LITERATURE REVIEW

The foundations of Project-Based Learning (PBL) are rooted in the works of John Dewey in 1938 and William H. Kilpatrick in 1918, who argued that learning is most effective when it is connected to real-life experiences and problem-solving. Later analyses, such as Thomas in 2000 and the contributions of Krajcik and Blumenfeld in 2006, refined the method by identifying its core principles: centrality of problems, active student participation, collaboration, production of tangible outcomes, and reflective evaluation. Empirical studies, including those

by Blumenfeld and colleagues in 1991 and Bell in 2010, emphasized that PBL enhances student motivation, creativity, and interdisciplinary learning connections. More recently, Barak in 2022 demonstrated that PBL in engineering education significantly strengthens design skills, problem-solving, and teamwork competencies.

Regional studies add further insights, highlighting the contextual conditions for effective PBL integration in higher education. G'anieva in 2020 stressed the necessity of modern laboratories, teacher preparation, and institutional support, while Jo'raev in 2021 examined methodological aspects of using project tasks in engineering education. Polat in 2007 analyzed the historical and modern evolution of the project method, underscoring the role of independent inquiry and reflection. Moreover, the Ministry of Higher Education of Uzbekistan in 2021 identified PBL as a central tool for achieving competence-based learning outcomes, aligning national education standards with international practices.

RESEARCH METHODS

This research used a qualitative approach to:

1. Review studies on PBL from around the world, including research from Russia and Uzbekistan (Dewey, 1938; Polat, 2007; G'anieva, 2020).
2. Compare PBL with traditional teaching methods.
3. Create a teaching model with key principles, conditions, and steps for implementation.
4. Have experts in teaching and engineering education review the model.

ANALYSIS AND RESULTS

Project-Based Learning (PBL) in the classroom requires keeping goals in mind and focusing on skills that students will genuinely use in their professional careers. It is important to mix theory and practice by connecting the knowledge acquired in class with real-world applications. Students should be actively involved in their learning process, and the approach must remain flexible in order to adapt to the institution and the available resources. Trying new methods by using technology, encouraging creativity, and fostering critical thinking is also essential. For the successful implementation of PBL, several conditions are required: up-to-date teaching materials and laboratories, teachers who are well-versed in PBL and ready to apply it, motivated students who can work independently, and support from businesses and external stakeholders.

The PBL model generally consists of five stages: the diagnostic stage, which includes the assessment of students' prior knowledge, needs, and motivation; the project design stage, involving the definition of the problem and the formulation of project objectives; the implementation stage, which consists of collaborative group work under the teacher's guidance; the presentation stage, during which students present and defend their project outcomes; and finally, the reflection and evaluation stage, which emphasizes critical analysis of the results, self-assessment, and teacher feedback. The expected outcomes of PBL are the acquisition of deeper subject knowledge and the development of professional competencies. Students also improve their ability to work in teams and take leadership roles, enhance their creativity by generating new ideas and solving problems, and increase their motivation and responsibility. This teaching style demonstrates that PBL can be an effective method, particularly in technical universities. Studies conducted worldwide (Blumenfeld et al., 2019; Barak, 2022) confirm that project-based learning increases students' interest and leads to better educational outcomes.

Similarly, Uzbek researchers (G'anieva, 2020; Jo'raev, 2021) emphasize that projects enhance students' creativity and prepare them for professional careers. However, certain challenges must be considered, such as providing sufficient resources, ensuring proper teacher training, and aligning project tasks with the curriculum. Despite these considerations, the model can be adapted to different educational contexts. By applying these steps, universities in Uzbekistan and other countries can effectively prepare students to become competent professionals capable of addressing real-world problems.

CONCLUSION AND SUGGESTIONS

This study demonstrates that a teaching approach based on Project-Based Learning (PBL) has clear principles, pedagogical requirements, and five essential stages. Implementing this approach in technical universities enhances students' knowledge, creativity, and motivation. The findings suggest incorporating PBL into higher education curricula in order to modernize teaching methods and align them with global standards.

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