

## HOW PBL CAN DEVELOP CRITICAL THINKING AND PROBLEM-SOLVING SKILLS IN STUDENTS BY HAVING THEMWORK ON REAL-WORLD CHALLENGES

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**Annotation:** This thesis explores the effectiveness of **project-based learning (PBL)** as an educational approach that promotes student engagement, critical thinking, and real-world problem-solving skills. It examines various methodologies for implementing PBL in classroom settings and highlights its impact on student motivation and academic performance. The study aims to demonstrate how PBL, when designed and executed properly, can bridge the gap between theoretical knowledge and practical application. This work contributes to the existing body of educational research by offering practical strategies and insights for educators seeking to adopt a student-centered, hands-on approach to teaching.

**Key words:** hands-on projects, problem-solving abilities, authentic problems, metacognitive skill.

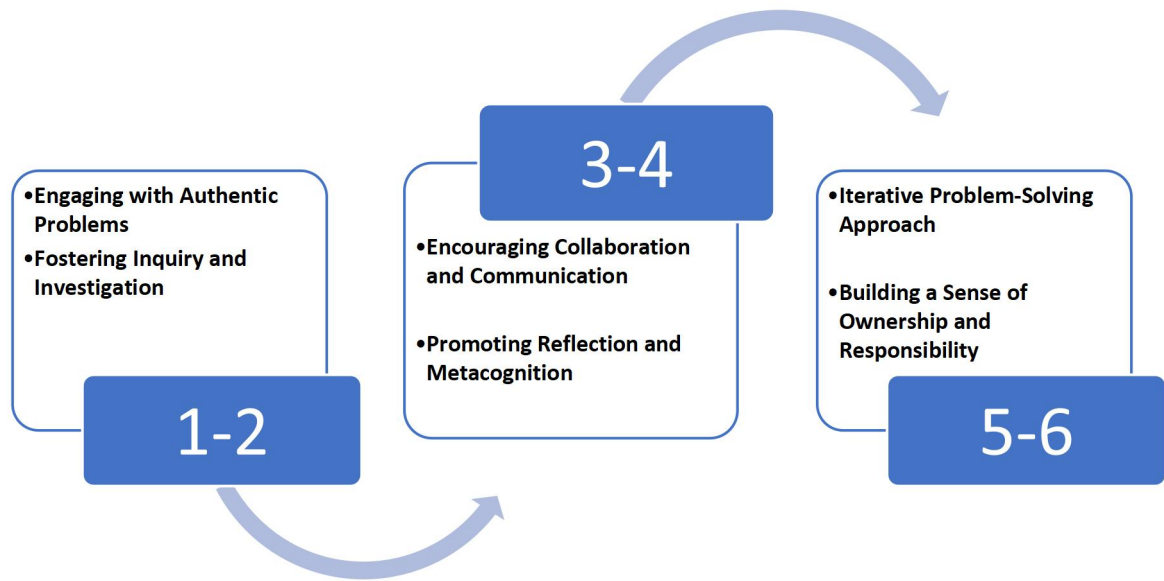
Project-Based Learning (PBL) is an educational methodology that emphasizes learning through hands-on, meaningful projects. These projects are often structured around real-world challenges, which can be local, global, or relevant to students' interests and experiences. According to Bell (2010), Project-Based Learning (PBL) is an effective instructional approach for developing essential 21st-century skills, such as critical thinking, collaboration, and communication. By engaging students in hands-on projects that mirror real-world challenges, PBL provides opportunities for learners to apply their knowledge in practical, meaningful contexts. Bell emphasizes that when students are tasked with solving authentic problems, they become more motivated and engaged, resulting in deeper understanding and retention of content.<sup>1</sup> PBL is particularly effective in developing critical thinking and problem-solving skills, which are essential for success in today's complex world. Project-Based Learning (PBL) serves as a powerful educational approach that goes beyond traditional teaching methods by immersing students in real-world challenges. As Bell (2010) highlights, PBL engages students in hands-on projects that not only foster academic knowledge but also develop essential skills such as critical thinking and collaboration. This methodology promotes the development of problem-solving abilities by encouraging students to inquire, collaborate, and reflect throughout the learning process.<sup>2</sup> By providing authentic contexts and opportunities for iterative problem-solving, PBL equips learners with practical skills needed for lifelong learning and professional success. Ultimately, PBL transforms the classroom into a dynamic environment where students become active participants in their own education, preparing them to navigate and contribute meaningfully to the complexities of the modern world.<sup>3</sup> There are several steps to obtain the core result of the PBL:

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<sup>1</sup> Bell, S. (2010). "Project-Based Learning for the 21st Century: Skills for the Future." *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, 83(2), 39-43.

<sup>2</sup> Thomas, J. W. (2000). "A Review of Research on Project-Based Learning." *The Autodesk Foundation*.

<sup>3</sup> Hmelo-Silver, C. E. (2004). "Problem-Based Learning: What and How Do Students Learn?" *Educational Psychology Review*, 16(3), 235-266



Picture 1.1. The steps in obtaining the results of PBL method.

### **1. Engaging with Authentic Problems**

PBL allows students to engage with problems that mimic or directly relate to real-world scenarios. Instead of learning in an abstract or theoretical way, students are tasked with addressing issues they might encounter outside the classroom. This approach helps them:

- Understand the relevance and application of their learning.
- Analyze and break down complex problems into manageable parts.
- Connect classroom knowledge with real-world contexts, deepening their understanding.

### **2. Fostering Inquiry and Investigation**

In PBL, students are encouraged to ask questions, research, and investigate to find solutions. This process helps develop critical thinking as they:

- Formulate hypotheses or approaches based on their initial understanding of the problem.
- Gather and evaluate information from various sources, discerning which data is credible or most relevant.
- Test their ideas through experiments, prototypes, or further research, refining their understanding as they progress.

By engaging in inquiry, students not only learn to seek out information but also develop the skills to critically assess and interpret it.

### **3. Encouraging Collaboration and Communication**

Most PBL projects are designed to be collaborative, where students work in teams to solve problems. This collaborative environment helps students:

- Communicate their ideas effectively, listen to others, and negotiate solutions.
- Learn to value different perspectives and integrate diverse ideas into their problem-solving process.
- Develop leadership and organizational skills as they delegate tasks, manage time, and take responsibility for their contributions.

Collaboration in PBL settings mirrors the collaborative nature of professional work, preparing students for teamwork and effective communication beyond school.

### **4. Promoting Reflection and Metacognition**

PBL emphasizes reflection as a key component of the learning process. Students are encouraged to reflect on their work and the strategies they use, which:

- Helps them identify what worked well and what didn't, developing their ability to assess their problem-solving methods critically.
- Promotes a growth mindset as they recognize that making mistakes is a valuable part of learning and improvement.
- Enhances their metacognitive skills—understanding how they think and learn—which is crucial for becoming independent, lifelong learners.

### **5. Iterative Problem-Solving Approach**

PBL often involves an iterative process where students prototype, test, and refine their solutions. This approach cultivates resilience and adaptability as students:

- Learn that initial solutions may not always work, and that revisiting and rethinking their approach is a natural part of problem-solving.
- Apply feedback from teachers, peers, or even community members to improve their projects.
- Develop perseverance and creativity, as they must think outside the box to overcome obstacles and reach their final goals.

### **6. Building a Sense of Ownership and Responsibility**

By working on projects that they have some control over, students feel a sense of ownership in their work. This responsibility drives them to think critically about:

- The impact of their actions and decisions.
- The quality and credibility of their work, as they know it might be presented to a broader audience (e.g., community members or industry professionals).
- How their contributions align with their goals, both for the project and in terms of their personal learning outcomes.

Project-Based Learning (PBL) is an effective educational approach for developing critical thinking and problem-solving skills in students. By working on real-world challenges, students engage deeply with content, collaborate with others, and iterate on their solutions, all while learning to reflect on and evaluate their own thought processes. This prepares them not only for academic success but also for the demands and complexities of real-world scenarios. Project-Based Learning (PBL) serves as a powerful educational approach that goes beyond traditional teaching methods by immersing students in real-world challenges. It promotes the development of critical thinking and problem-solving skills by encouraging students to inquire, collaborate, and reflect throughout the learning process. By providing authentic contexts and opportunities for iterative problem-solving, PBL not only enhances students' academic knowledge but also equips them with the practical skills needed for lifelong learning and professional success. Ultimately, PBL transforms the classroom into a dynamic environment where students become active participants in their own education, preparing them to navigate and contribute meaningfully to the complexities of the modern world.

### **References:**

1. **Bell, S. (2010).** "Project-Based Learning for the 21st Century: Skills for the Future." *The Clearing House: A Journal of Educational Strategies, Issues, and Ideas*, 83(2), 39-43.
  - This article discusses how PBL equips students with essential 21st-century skills such as critical thinking, collaboration, and communication through hands-on, real-world projects.
2. **Thomas, J. W. (2000).** "A Review of Research on Project-Based Learning." The Autodesk Foundation.

- A comprehensive review detailing the principles of PBL and how it impacts student engagement and learning outcomes, emphasizing its effectiveness in developing critical thinking.
- 3. **Hmelo-Silver, C. E. (2004).** "Problem-Based Learning: What and How Do Students Learn?" *Educational Psychology Review*, 16(3), 235-266.
  - This study focuses on the inquiry-driven nature of PBL and how students gain deeper knowledge by exploring real-world problems and engaging in collaborative learning.
- 4. **Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991).** "Motivating Project-Based Learning: Sustaining the Doing, Supporting the Learning." *Educational Psychologist*, 26(3-4), 369-398.
  - Highlights the motivational aspects of PBL, explaining how authentic problems and student choice increase ownership and engagement in the learning process.
- 5. **Larmer, J., & Mergendoller, J. R. (2015).** "Gold Standard PBL: Essential Project Design Elements." Buck Institute for Education.
  - Provides a framework for designing effective PBL projects that focus on real-world application, critical thinking, and iterative learning, emphasizing the importance of reflection and feedback.
- 6. **Barron, B. & Darling-Hammond, L. (2008).** "Teaching for Meaningful Learning: A Review of Research on Inquiry-Based and Cooperative Learning." *Edutopia*.
  - This resource explores various inquiry-based methodologies, including PBL, and their role in promoting metacognition, problem-solving, and collaboration among students.