

**MECHANISMS FOR DEVELOPING STUDENTS CREATIVE AND
CRITICAL THINKING THROUGH THE PROBLEM-BASED LEARNING
APPROACH.**

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ANNOTATION. *Problem-Based Learning (PBL) is an instructional methodology that encourages students to learn through the exploration of complex, real-world problems. This approach not only enhances knowledge acquisition but also fosters creative and critical thinking skills. This annotation outlines the mechanisms through which PBL facilitates these cognitive skills, highlighting its effectiveness in educational settings. Problem-Based Learning is an effective approach for developing students' creative and critical thinking skills. By engaging with complex problems, students learn to think independently, collaborate with peers, and apply their knowledge in innovative ways. The mechanisms inherent in PBL not only prepare students for academic success but also equip them with essential skills for their future professional lives.*

KEY WORDS: *Problem-based, methodology, approach, creative, critical, mechanisms, student, educational, innovative.*

Problem-Based Learning (PBL) is an instructional method that uses complex, real-world problems as a vehicle for students to develop critical thinking, problem-solving skills, and creativity. This approach encourages students to take an active role in their learning, fostering a deeper understanding of the subject matter while enhancing their ability to think critically and creatively. This summary will outline mechanisms for developing students' creative and critical thinking through the PBL approach. Problem-Based Learning is an educational strategy that involves students

working in groups to solve open-ended problems. In this process, students must apply their knowledge, research new information, and collaborate with peers to find solutions.

Student-Centered	Collaborative Learning	Real-World Problems	Self-Directed Learning
PBL shifts the focus from the teacher to the students, allowing them to take control of their learning.	Students work in groups, promoting teamwork and communication skills.	Problems presented in PBL are often complex and relevant to real-life situations, making learning meaningful.	Students are encouraged to take responsibility for their learning, which fosters independence and motivation.

The Problem-Based Learning approach offers a powerful mechanism for developing students' creative and critical thinking skills. By engaging students in real-world problems, fostering collaboration, and encouraging inquiry and reflection, educators can create a dynamic learning environment that promotes deep understanding and innovation. Implementing PBL effectively requires careful planning, structuring of group work, and ongoing support from educators, ultimately preparing students to navigate complex challenges in their future endeavors.¹

The role of critical thinking is very important to survive in this era (Epstein, 2006). Teachers must create a learning situation that can help the students to develop their critical thinking skill. As in mention in Yazidi (2014) that several learning models that can be implemented in curriculum 2013 in which most of the high school implemented, those are 1) Discovery learning; 2) Problem-based Learning; 3) Project-based Learning; 4) Contextual Learning and; 5) Cooperative Learning. The similarity amongst them is the centre of learning activity

¹ Costa, A. L. (1991). *Developing Minds: A Resource Book for Teaching Thinking*. Alexandria, VA, USA: Association for Supervision and Curriculum Development
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is placed on student but the most suitable one in order to build students' critical thinking is Problem-based Learning (PBL) which can help the student to build reasoning and communication skill that necessary for success in life (Duchet al, 2001: 180). Hence, the implementation of PBL helps the teachers to create learning situation in the class when before is only focus on transferring knowledge from the teachers to the students while now it more focuses on how students construct their own knowledge based on experiences they got. Several researchers have been conducted with aim focus on implementing Problem-Based Learning models toward enhancing students' critical thinking skill (Sastrawatiet al, 2011, Anggaraet al, 2013, Lukitasari, 2013, Nurhayati, 2014, Fakhriyah, 2014). It is related to the personal experience of the researcher when the researcher having experience as a student teacher training in one of senior high school in Majalengka.

²After studying all of the previous research, the researcher concludes PBL can be implemented in every level of students and a variety of subjects with the result that it is can develop students' critical thinking. Meanwhile, the previous research did not address the barriers of the implementation of PBL from the teachers' perspective. Therefore, this recent study wants to describe the process of implementation of PBL to develop students' critical thinking and also to find out the barriers of the implementation of PBL.

Problem Based Learning (PBL) is defined as a pedagogical approach which uses cases and problems as departure points in order to accomplish the intended learning objectives. Actually, it is one of the most innovative instruction methods in the history of education in which an authentic or ill structured problem is presented to students to embed them into the learning process by building new knowledge onto the previous one in order to solve the problem itself. Students' problem solving, selfdirected, collaborative learning skills and motivation levels are aimed to be developed during the problem solving process (Hmelo-Silver, 2004). Constructivism (Piaget, 1970), discovery learning (Bruner, 1961), experiential and

² Eipstein, R. L., & Kernberger, C. (2006). *Critical Thinking* (3rd ed.). 1120 Birchmount Road, Toronto, Ontario M1K 5G4, Canada: Thomson Nelson.

inquiry-based instructions (Dewey, 1910) are some of the approaches that have been proposed throughout educational psychology framework. Even problem-based instruction (Barrows & Tamblyn, 1998) is one of them. In fact, logic of knowledge and psychology of knowledge unites under the roof of discovery. Even if they can be seen as a minimally guided and pedagogically equivalent approach (Barrows & Tamblyn, 1998), their applications are different.

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