

Project-Based Learning vs. Problem-Based Learning: Uncovering Effective Learning Methods

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Abstract

Effective education must target dynamic and adaptive learning abilities. Two methods learning that is proven to be effective in developing students' creativity and critical thinking are Project-Based Learning (PBL) and Problem-Based Learning (PBM). Project-Based Learning involving students in completing real projects that are relevant to everyday life, increasing student motivation, collaboration and critical thinking. This approach allows students apply academic concepts in practical contexts, strengthen understanding, and develop a sense of responsibility and ownership of their learning outcomes. On the other hand, Problem-Based Learning focuses on developing students' abilities to solve problems complex and realistic. This process not only improves critical thinking and abilities problem solving, but also collaboration and communication skills. PBM often involves real world situations, making learning more relevant and interesting for students. These two methods has advantages in improving academic outcomes and developing life skills student. Educators can choose or combine both to create a learning environment holistic approach that suits the characteristics and needs of students. Therefore, it is important for modern education to use dynamic and responsive learning models such as PBL and PBM to help students become competent, creative and independent in completing challenges in the future. Everything is returned to the students, whichever is more effective both of them.

Keywords

Project-Based Learning; Problem-Based Learning

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1. INTRODUCTION

Education is a method or effort for each individual to obtain and improve knowledge. Educational methods and curricula have gone through a lot development and change as time goes by and human needs. In that era This continually growing need to produce graduates who are not only competent, experienced, creative,



innovative in terms of knowledge but also able to communicate, work equally effective and efficient. There are two approach methods that have proven effective in developing students' creativity and critical thinking is through model implementation project-based learning and problem solving. (Kanadh, S, 2019 and Ismayani, A, 2016).

Here we don't just compare and analyze the positive and negative effects but also the advantages and disadvantages of each learning model. Through this It is hoped that readers can judge which is more effective between these two learning models, and which one is suitable for each individual. In a class it will definitely be filled with various characters and levels of ability in absorbing material, so with this students will given the opportunity to compare with yourself.

In this context, it is important to understand that both Project Based Learning and Problem Based Learning has a unique but complementary approach. Project Based Learning focuses more on learning through direct experience in solving real projects, which allow students to apply their knowledge in context which is relevant. On the other hand, Problem Based Learning prioritizes students' abilities face and solve complex problems, so they are trained to think critically and creative. By utilizing these two methods, educators can create a learning environment which is more dynamic and responsive, helping students not only to understand concepts but also to develop skills that are much needed in the world of work. Through analysis in depth regarding the advantages and disadvantages of each method, it is hoped that readers can determine which approach best suits learning needs and characteristics they. The learning model that students need is one that can create learning ability and a good learning environment. (Fandi Ahmad, 2015). There are various various models and learning methods. Although there are many models and methods in learning However, all have the same learning objectives, namely to achieve certain learning outcomes optimal. As the aim of learning is to increase knowledge, students' understanding and processing, learning is said to be successful if the final learning results are para students can improve. Learning model that can be applied and developed by teachers to achieve learning objectives are problem-based learning and learning project based. This learning model focuses on students as the center of learning (Juliawan, 2012).

Application of learning by taking an experience-focused approach completing real projects or experience solving complex problems certainly has different inputs and outputs. But is it possible if you can get both at once? in one learning method, because both things have an important role in developing students in facing problems and tests in life. Especially for high school and university students who will later experience the Bonus Era Demographics where productive age dominates more than non-productive age. In this Era The productive age population has the largest population, so there will be intense competition. So Therefore, many abilities are needed to survive and be successful in this era. Someone who has real project experience and problem solving abilities as well as other soft skills, life skills who will win the competition later. Because that is a demand and a need for Demographic Bonus Era. (Ministry of Social Affairs, Women's Empowerment, Family Planning and BKKBN 2013)

2. METHODS

The research method used in this article is the meta-analysis and review method literature. In meta-analysis, authors collect quantitative data from various relevant studies to calculate the overall effect of Project Based Learning and Problem Based Learning in increase students' creativity and critical thinking. Statistical analysis was performed to assess significance results obtained. Meanwhile, the literature review focuses on qualitative analysis of various types existing articles and research, comparing the findings, methodology, and context of each each study. By combining these two methods, this article provides insight comprehensive overview of the effectiveness of both learning approaches as well as recommendations for implementation in class.

3. FINDINGS AND DISCUSSION

Basic concepts of Project and Problem Based Learning

Project Based Learning is a learning method that prioritizes student involvement in completing real projects as a medium to develop knowledge, skills, and skills. in completing real projects as a medium to develop knowledge, experience, innovation and skills. In Project Based Learning, students collaborate to plan, implement, observe and evaluate projects, which usually focus on real-world challenges. on real-world challenges. This approach encourages students to think critically, work collaboratively, and apply learned concepts in a practical context (Bell, S. 2010).

Problem Based Learning is a learning method that focuses on developing students' ability to solve complex and realistic problems. In Problem Based Learning, students work in groups to analyze problems, find solutions, and apply the knowledge they have learned. apply the knowledge they have learned. This process not only improves critical thinking, but also collaboration and communication skills. PBL often involves real-world situations, which makes learning more relevant and interesting for students. Hmelo-Silver, (C. E. 2004)

Project-based learning is learning that involves students directly with the object of their learning. Learners directly with the object of learning. Project-based learning is also one of the most effective learning models or ways of model or way of learning that is quite effective to be applied as a learning practice. In learning, of course, there are goals that will be achieved by students, project-based learning has a goal to improve the minimum competence of students. This project-based learning aims to improve the minimum competencies possessed by students. This kind of learning will be a good experience for learners because through this learning, learners can review the material. Learners can review the material previously discussed before starting a new lesson.

Project-based learning has various objectives including:

- a. Setting Learning Objectives: Define clear and measurable learning objectives to be achieved through the project, ensuring alignment with the curriculum and student needs.

- b. Selection of Relevant Projects: Select projects that have direct relevance to real life or have practical applications to stimulate student interest and motivation.
- c. Determination of Time and Resources: Set a realistic time limit for completing the the project and ensure the availability of necessary resources, such as equipment, materials, and supplies for students.
- d. Design of Project Steps : Detail the steps that students should take to complete the project, dividing the project into measurable stages to enable monitoring of progress. Stages that can be measured to enable monitoring of the
- e. Integration of Subjects: Make sure the project covers a wide range of subjects to allow students to integrate knowledge from different disciplines enabling them to see connections between subject matter.
- f. Teacher Support: Ensure there is adequate teacher support to serve as a facilitator, provide guidance, and help students overcome potential obstacles that may arise.
- g. Formative and Summative Evaluation: Provide a formative evaluation mechanism to monitor student progress during the project, as well as define summative evaluation criteria to assess the final project outcome.
- h. Stimulate Student Collaboration: Facilitate cooperation between students, given that projects often involve teamwork so that students can learn to collaborate, communicate, and solve problems together.
- i. Time for Reflection and Feedback: Provide time for students to reflect, both individually and in groups, while providing constructive feedback to help them improve their skills.
- j. Flexibility of Adjustment Be flexible in designing the module, take into account students' different levels of understanding, and allow for customization of the project according to their needs and development. By designing a project-based learning module by taking into account various things. (Primary School Teacher Education Study Program 2024)

Purpose and Goal of Problem-Based Learning

Problem-based learning focuses on problem solving, which is also included in one of the 10 Lifeskills that learners must have to help solve their problems. Imagine the problem is a level in the game, if you do not try to complete the level it will be trapped and stuck in that level. However, if you have passed the level or problem, if in the future you meet the same problem, it will be easy to solve it. Here are some of the objectives of problem-based learning:

- a. Development of Problem Solving Skills: Encourages students to think critically and creatively in analyzing complex problems.
- b. Improved Collaboration Skills: Builds students' ability to work together in groups, communicate and share ideas.
- c. Application of Knowledge: Allows students to apply the theories and concepts they have learned in a real context.

- d. Independent Learning: Encourages students to become independent learners, increasing their sense of responsibility for their learning process.
- e. Preparation for the Real World: Equipping students with relevant and practical skills required in real-life situations and careers. These are the various objectives of Problem-Based Learning. (Barrows, H. S. 1996)Efektivitas dalam Konteks Pendidikan

Project-based learning is proven to be effective in increasing student engagement and deep understanding of concepts. In Project Based Learning, students do not just passively receive information, but are actively involved in the learning process through planning, implementing and evaluating projects that are relevant to real life. This approach allows students to apply the knowledge they have learned in a practical context, thus strengthening their understanding. Research shows that students who engage in Project Based Learning tend to have higher motivation, better collaborative abilities, as well as more honed critical thinking skills. In addition, Project Based Learning can also improve students' social and communication skills. In working together to complete a project, students learn to listen, give feedback, and resolve conflicts that may arise within the group. This not only prepares them to work in teams in the future, but also helps them develop a sense of responsibility and ownership of their learning outcomes. Thus, the effectiveness of project-based learning lies not only in academic achievement, but also in the development of life skills that are essential for students in the modern era. (Bell, S 2010)

Let's compare it with Problem Based Learning, Problem Based Learning shows significant effectiveness in developing students' critical thinking skills and problem-solving abilities. In this approach, students are exposed to complex and realistic problems, which encourage them to analyze, discuss and seek solutions collaboratively. This process not only keeps students actively engaged in learning, but also encourages them to link theory with practice. Research shows that students who participate in Problem Based Learning tend to be better able to apply their knowledge in real situations, which improves understanding and long-term retention of information.

In addition, Problem Based Learning also develops important social and communication skills. In groups, students learn to collaborate, negotiate and respect the viewpoints of others when seeking solutions to problems at hand. This helps them build confidence and interpersonal skills that are invaluable in the world of work. With a focus on real-world problems, Problem Based Learning not only improves academic outcomes, but also prepares students to face life's challenges with a more analytical and creative approach (Barrow, H,S 1996).

4. CONCLUSION

Conclusions regarding the effectiveness of project-based learning (Project Based Learning) and problem-based learning (Problem-Based Learning) shows that both approaches have significant advantages in improving student skills.

Project Based Learning (PBL) is effective in increasing engagement students and deep understanding of concepts through hands-on experience. Students don't just learning the theory, but also applying it in real projects, which is strengthening their motivation and collaborative abilities. This contributes to development managerial skills and creativity, as well as providing relevant experience with real world challenges.

Problem Based Learning (PBL), on the other hand, focuses more on development of critical thinking skills and problem solving abilities. With Facing complex problems, students learn to analyze and find solutions effectively collaborative, which also improves communication and social skills. this approach prepare students to face life's challenges with an analytical approach and creative.

Overall, both Project-Based Learning and Problem-Based Learning make a positive contribution to academic outcomes and skills development student life. Educators can choose the most appropriate method based on characteristics and student needs, or even combining the two to create an environment more holistic learning.

REFERENCES

- Albana, L. F. A. N. F. (2020). Efektivitas Modul Pembelajaran Berbasis Proyek sebagai Sumber Belajar Siswa SMK. *SAP (Susunan Artikel Pendidikan)*, 5(1)
- Astuti, R. Y., Susanti, R., & Solihatin, E. (2021). Penerapan metode pembelajaran berbasis proyek untuk meningkatkan aktivitas dan hasil belajar siswa pada mata pelajaran Matematika. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 6(8), 1852- 1862. <https://doi.org/10.17977/um020v6i82021p1852>
- Barrows, H. S. (1996). Problem-Based Learning in Medicine and Beyond: A Brief Overview. In A. Schmidt & H. S. Barrows (Eds.), *The Clinical Teacher*.
- Bell, S. (2010). Project-Based Learning for the 21st Century: Skills for the Future. *The Clearing House*, 83(2), 39-43.
- Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palinesar, A.(1991). Motivating project-based learning: Sustaining the doing, supporting the learning *Educational Psychologist*,26(3-4).369-398.
- C. Wang (2024) Using design thinking for interdisciplinary curriculum design and teaching: a case study in higher education
- Hmelo-Silver, C. E. (2004). Problem-Based Learning: An Instructional Model and Its Constructivist Framework. *Instructional Science*, 32(3), 235-272.
- Kamaruddin, 1., Suarni, E., Rambe, S., Sakti, BPS, Rachman, RS, & Kurniadi, P. (2023). Penerapan Model Pembelajaran Berbasis Proyek Dalam Pendidikao: Tinjauan Literatur. *Jural Review Pendidikan dan Pengajaran (JRPP)*. 6 (4). 2742,2747.
- Khasinah, S. (2023). Pembelajaran Berbasis Proyek: Definisi, Prosedur Dan Manfaat. *Jurnal Pendidikan Aktual (JPA)*, 6 (1), 1-8.
- Lapase, M. H. (2021). Implementasi Pembelajaran Berbasis Proyek untuk Meningkatkan Hasil Belajar Siswa pada Mata Pelajaran Matematika di SD Negeri Pinedapa. *Jurnal Paedagogy*, 8(2), 134-143.

- Lestari, C., & Pardono, A. (2022). Penerapan project based learning untuk meningkatkan keterampilan berpikir kritis dan kreatif siswa. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 7(10), <https://doi.org/10.17977/um037v7/102022p25062506-2515>.
- Thomas, J. W. (2000). *A Review of Research on Project-Based Learning*. The Autodesk Foundation.
- Web. Jurnal Rahmawati, Y. (2023). Efektifitas Penggunaan E-Modul Berbasis Project Based Learning Terhadap Kompetensi Peserta Didik Pada Kurikulum Merdeka Belajar. *EDUKASIA: Jurnal Pendidikan Dan Pembelajaran*, 4(1), 293-300.