PROBLEM BASED LEARNING: DEVELOPING CRITICAL THINKING SKILLS IN THE LITERACY ERA

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Introduction

Education is an indispensable part separated from efforts to create resources quality human beings; therefore, education must be continuously fostered and developed so that quality humans can grow and develop according to the demands of the times that are constantly changing, competitive and massive. Only with quality education can respond to various demands, face competition and adapt to the environment, both national and international global. The main goal of education is to develop potential and better educate individuals, have creativity, knowledge, personality, be independent and become more responsible individuals (Ministry of Education Indonesia, 2003).

Digital literacy is one factor that contributed to the birth of civilization, new culture, new paradigm and so on. In education, it gives rise to the media new learning and raises various new learning models, new learning approaches, etc. All of that is part of society's demands that change to adapt to the environment (Syamsidah & Suryani, 2018).

Traditional learning models that emphasize teacher centeredness are no longer following the development of technology and information in this digital literacy era and are less effective. The traditional teaching and learning process generally takes place in one direction: the transfer or transfer of knowledge, information, norms, values, and others from a teacher to students. This study is built to assume that students are like an empty bottles or white paper. Teacher or tutor who has to fill the bottle or write anything on the white paper (Hamzah B.Uno, 2007). Therefore, there is a need for learning innovations that emphasize students as learning subjects. Through this innovation, it is hoped that it can foster students' skills to practice thinking critically in solving a problem.

Problem-based learning is one of the models designed so that students gain essential knowledge, which makes them proficient in solving problems, have their learning model and has the skills to participate in teams. This model is considered relevant to the demands of society change, a creative and innovative society, and a competitive modern society.

Problem-based learning is very appropriate to be given to students at all levels, especially elementary school teacher education, which demands solid skills and competencies because elementary school teacher education is oriented to pedagogy development, which demands much innovation with theory and problem-based learning models. Thus, this model is expected to give birth to prospective teachers who have an independent spirit, are accustomed to solving problems and have intense creativity.

This article is structured to provide an overview of the importance of learning models, especially regarding PBL (Problem-Based Learning) in the era of literacy. Teachers must be technologically literate in this era, mainly related to strategies and learning methods following the times public.

Method

The method used in this study uses a library method or approach.(library research); Literature study or literature can be interpreted as a series of activities regarding collecting library data, reading and recording and processing materials research (Mestika, 2014). In literature research, there are at least four main characteristics that the author needs to pay attention to: First, the author or researcher is dealing directly with the text or numerical data, not with direct knowledge from the field. Second, library data are "ready to use" means that the researcher does not go directly to the field because the

researcher is face to face with data sources in the library. Third, library data is generally a source of secondary. The researcher obtains material or data from second hands and not data original from the first data in the field. Fourth, the library data condition is not limited by space and time (Mestika, 2014).

Discussion

Problem Based Learning

Problem-based learning then abbreviated PBL is one of the innovative learning models that can provide active learning conditions to students. PBL is a model learning that involves students solving a problem through the stages of the scientific method so that students can learn knowledge related to the problem and at the same time have the skills to solve the problem. PBL will become a learning approach that seeks to apply problems that occur in the real world as a context for students to practice how to think critically and get problem-solving skills.

This learning model involves students in learning; students get various problems from teachers, students are expected to analyze problems, diagnose problems, formulate alternative/problem-solving strategies, define and implement problem-solving strategies and evaluate the problem. Therefore, the teacher in this must be skilled in selecting and sorting problems that are essential for achieving learning objectives.

Problem-based learning can help students acquire knowledge and skills to solve problems individually and in groups. This model enables active and participatory learners in various activities, especially in making decisions, then educates students to be independent without being too dependent on others. In addition, by using the problem-solving method, students are not only skilled in argumentation but also skilled at finding points in problem-solving. Thus, there will be no revenge in both groups, and not there will be questions among students because the problem has been solved and given way out by students thanks to the role teacher in it (Sumiarti, Putrayasa, & Wendra, 2019).

Based on some of these views, it can be concluded that Problem Based Learning is an approach that gives new knowledge to students to complete a problem. Then this approach is an approach to participatory learning that can help teachers create a fun learning environment. It starts with an essential and relevant issue (relevant) for students and allows students to gain more realistic learning experiences (objective). However, teachers are still expected to direct learners to find problems that are relevant and actual and realistic.

Problem-based learning contains five component that must be mastered and understood by both teachers and students. These five things are as attached to the chart as follows.

Picture 1.
Five components of PBL learning

The aspect of the Problem Solving and critical thinking

An educator needs to understand the aspect the learning process. If the educator understands the flow of the learning aspect, It's is clear that it is easier to manage the teaching and learning process. An educator responsibility to ensure regular interaction occurs between the basic human capabilities of a learner and the culturally invented technologies so that it finally leads to enhancement in their cognitive capabilities (Munna & Kalam, 2021). Dewey, The following are the aspect of the Problem Solving (Https://www.dosenpendidikan.co.id/problem-based-learning/, 2022).

Table 1.
The Aspect of PBL

Aspect	Description
Develop Thinking Skills And Problem Solving Skills	Thinking about abstract ideas is different from the processes used to think about real-world situations. However, the thought process has some similarities between cases. It varies depending on what one is thinking in solving the problem and critical thinking requires the ability of deductive and inductive thinking skills (Samani, Sunwinarti, Putra, Rahmadian, & Rohman, 2019) Resnick emphasizes the importance of context and relevance when thinking about thinking.
Learning Adult Role	Problem Based Learning "PBL" is also intended to help students perform in real-life situations and learn essential roles commonly performed by adults. For example; Provide books and other reading materials throughout the environment linked to experiences offered and children's interests (West Sussec County Council, 2020). Resnick argues that this form of learning is necessary to bridge cooperation in completing assignments and has elements of apprenticeship learning that encourage observation and dialogue with others to understand roles outside of school.
Skills for Independent Study	Teachers who continuously guide students by encouraging and directing students to ask questions and giving rewards for the weighty questions they ask, by encouraging students to find solutions to real problems formulated by students themselves, it is hoped that students can learn to handle the tasks of finding the solution independently in his later life. It is according to opinion (Naibaho, 2019) An independent learning strategy is a learning strategy that aims to build individual initiative, independence, and self-improvement.

The Stages of implementing the Problem-Based Learning model

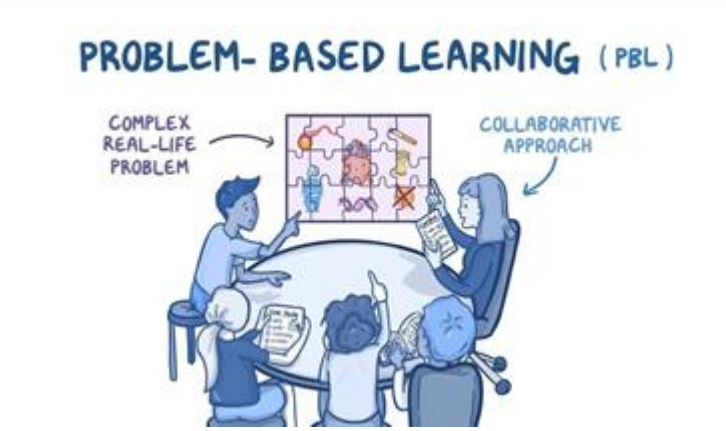
To teach students according to their learning styles so that learning objectives can be achieved optimally. There are various learning models. In practice, teachers must

remember that no perfect learning model is appropriate for all situations and conditions. Therefore, in choosing a model, Proper learning must pay attention to the state of students, the nature of the material teaching, the available media facilities, and the state of the teacher himself. According to (Emiliasari, Prasetyo, & Syarifah, 2019) Teachers must create a learning situation that can help the students to develop their critical thinking skill. One of the models that can develop critical thinking skills is problem-based learning.

Problem-based learning aims to develop and apply the essential skills of problem-solving based on self-study skills or group collaboration and gaining broad knowledge. Collaborative problem solving involves two different constructs—collaboration and problem solving. The assumption is that collaboration for a group task is essential because some problem-solving tasks are too complex for an individual to work through alone or the solution will be improved from the joint capacities of a team (Nelson, 2017).

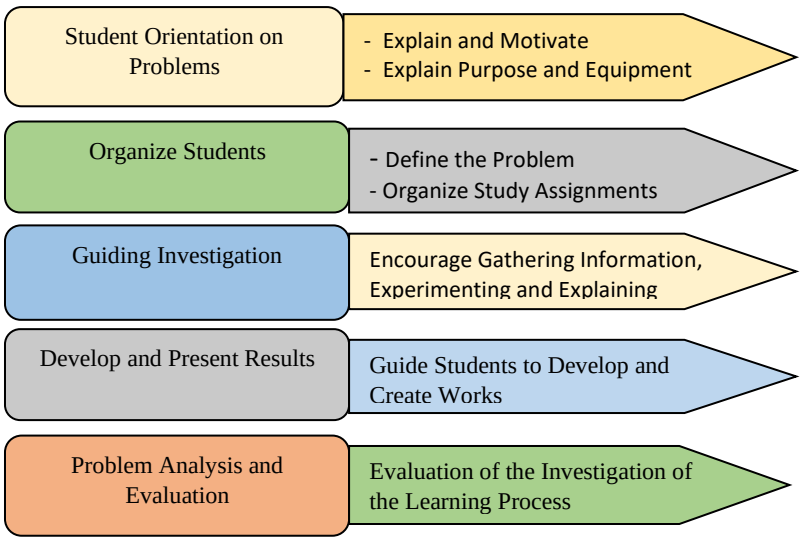
More clearly, the problem-based learning process to improve collaboration is shown in the following figure.

Picture 2
Learning Process of PBL with Collaborative Approach



The following are the steps of the problem-based learning process which consists of five stages.

Picture 3
Syntax Problem Based Learning



1. *Student orientation on problem*

Student orientation on problems; is a learning process that emphasizes problems that are multi-perspective so that it challenges students to acquire new knowledge independently by utilizing varied learning resources. Students can do this activity collaboratively to foster collaboration between students. This statement is supported by research results (Sahabuddin, 2017), problem-solving learning materials by using a portfolio in natural science class with materials about the relationship between living beings and their environment, natural resources, land, and water. While the teacher's role is to explain the learning objectives, explain the equipment needed, and motivate students to solve the chosen problem actively.

2. *Organize Student*

Organize student is a division of tasks among students with full responsibility so that learning activities can be carried out effectively and efficiently. While the teacher's role is to help students define and organize tasks related to learning with the problem. The teacher groups the participants teach in small groups consists of 4-5 people to solve the problem given through group discussion (Maryati, 2018).

3. *Guiding Investigation*

Guiding investigation is the teacher pushes students to collect the needed information and conduct experiments and investigations for explanations and troubleshooting. According to (Victoria Department of Education, 2017) Effective teachers set and communicate clear lesson goals to help students understand the success criteria, commit to the learning, and provide the appropriate mix of success and challenge. Furthermore teachers guide students in solving a problem through personal investigation and groups. Activity learning that is possible is that student's research with collect related information is given problem. The teacher guides the students by asking critical questions in search of problem-related answers that have been given.

4. *Develop and Present Results*

Develop and present the result of the work is that students developed their results of his investigation and asked the participant's students present their findings. This is in accordance with research findings from (Purwasih, R, 2018) collecting information students working and practicing questions regularly will improve mathematical thinking with the understanding and problem solving ability will be installed in their cognitive domain. At this stage, the teacher guides students to develop results his investigation and asked the participant's students to present their findings. Learning activities allow students to develop research results into general form (general formula), then present their findings (an answer to the problem that was given) and give a chance to other groups to respond and give opinions to group presentations.

5. *Problem Analysis and Evaluation*

Analyze and evaluate the solving process problem is students analyze and evaluate problem solving process obtained. Teachers help students reflect or evaluate their investigations and the processes they use. According to (Töman, 2017) teachers lay emphasis on sufficiency and efficiency of the measurable results in class. At the same time, the role is to guide students to perform an analysis of solving problems that students have found. Then evaluate learning outcomes regarding the material that has been studied, student.

Conclusion

Problem-based learning is a learning model that involves students solving a problem through the stages of the scientific method so that students can learn knowledge related to the problem and, at the same time, have the skills to solve problems. In general, PBL is a learning approach that uses problems in the natural world as a context for students to learn about critical thinking and problem-solving skills and acquire essential knowledge and concepts or subject matter.

PBL has characteristics including a learning centre for students or students, the role of teacher or teacher as a facilitator or guide (guide), the position of the problem or scenario learning as a basis, focus and stimulus, as well as the achievement of new information and understanding through self-directed and self-directed learning.

In the process of PBL, the teacher acts as a facilitator, which includes forming groups, providing or presenting problems, asking open-ended questions, avoiding lecturing, giving guidance to needed resources, asking open-ended questions, avoiding teaching, managing interpersonal relationships in groups to minimize conflict and misunderstandings that interfere with learning, encouraging learners to behave independently by encouraging learners to explore the knowledge they already have and determine the knowledge needed next, encourage group functioning by assist groups to set goals and create plans, identify problems group and reach a solution, the teacher also acts as an evaluator for student performance.

The role of the learner in PBL includes being able to learn independently, by finding, selecting, and using the best and most appropriate sources for problem-solving and gaining new ideas or knowledge. Can think proactively not only become imitators but can contribute ideas and give critical reasons for every idea put forward, can communicate clearly and professionally both orally or in writing, can work with other members in groups and team environments.

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