Conceptual Analysis of Problem-Based Learning Model in Improving Students Critical Thinking Skill

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Abstrak

Tujuan penelitian ini adalah untuk menganalisis secara konseptual terhadap model pembelajaran berbasis masalah dalam meningkatkan keterampilan berpikir kritis siswa. Metode penelitian yang digunakan dalam penelitian ini adalah deskriptif kualitatif. Adapun jenis penelitian ini adalah penelitian pustaka. Teknik pengumpulan data dengan menghimpun dan menganalisis dokumen-dokumen secara deskriptif, baik dokumen tertulis, gambar maupun elektronik. Hasil penelitian yang diperoleh kemudian disajikan secara deskriptif sesuai dengan masalah dan tujuan penelitian. Adapun hasil penelitian ini menunjukan, bahwa analisis konseptual terhadap model pembelajaran berbasis masalah dalam meningkatkan keterampilan berpikir kritis siswa, yaitu (1) Pembelajaran berbasis masalah adalah suatu model pembelajaran yang menggunakan masalah sebagai titik tolak pembelajaran. Dengan kata lain, pembelajaran berbasis masalah adalah suatu kegiatan pembelajaran yang berpusat pada masalah; (2) Pembelajaran berbasis masalah adalah suatu model pembelajaran yang melibatkan peserta didik untuk memecahkan suatu masalah melalui tahap-tahap metode ilmiah sehingga peserta didik dapat mempelajari pengetahuan yang berhubungan dengan masalah tersebut dan sekaligus memiliki keterampilan untuk memecahkan masalah; (3) model pembelajaran yang menggunakan masalah dunia nyata. Model pembelajaran ini bertujuan mendorong siswa untuk belajar melalui berbagai permasalahan nyata dalam kehidupan sehari-hari yang dikaitkan dengan pengetahuan yang telah atau akan dipelajarinya; (4) Model pembelajaran berbasis masalah merupakan model pembelajaran yang melibatkan aktivitas siswa yang dominan, guru berperan sebagai fasilitator. Hasil penelitian ini berimplikasi pada pembelajaran yang menyenangkan, menantang dan memotivasi peserta didik dalam melatih keterampilan berpikir kritisnya.

Kata Kunci: *Analisis Konseptual*, *Model Pembelajaran Berbasis Masalah*, *Berpikir Kritis*

Abstract

The purpose of this research was to conceptually analyze the problem-based learning model in improving students' critical thinking skill. The research method used in this research was descriptive qualitative. The type of research was library research. Data collection techniques by collecting and analyzing documents descriptively, both written, image and electronic documents. The research results obtained were then presented descriptively in accordance with the research problems and objectives. The results of this research showed that the conceptual analysis of the problem-based learning model in improving students' critical thinking skill, namely (1) Problem-

based learning is a learning model that uses problems as a starting point for learning. In other words, problem-based learning is a problem-centered learning activity; (2) Problem-based learning is a learning model that involves students to solve 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; (3) a learning model that uses real-world problems. This learning model aims to encourage students to learn through various real problems in everyday life that are related to the knowledge they have or will learn; (4) Problem-based learning model is a learning model that involves dominant student activities, the teacher acts as a facilitator. The results of this study have implications for learning that is fun, challenging and motivates students to practice their critical thinking skills.

Keyword: *Conceptual Analysis*, *Problem Based Learning Model*, *Critical Thinking*

INTRODUCTION

There are eight skills that every student must have in the 21st century (Kapoh et al., 2023), They are: (1) Critical thinking skill, referring to the ability of students to analyze complex problems, investigate questions for which there is no clear answer, evaluate different points of view of information sources, and draw appropriate conclusions based on evidence and reasoning; (2) Collaboration skill, which refer to the ability of students who can work together to solve problems or answer questions, to work effectively, respect each other in teamwork to achieve goals and take joint responsibility for completing tasks; (3) Communication skill, referring to the ability of students in organizing their thoughts, findings and sharing them effectively through various media as well as orally and in writing; (4) Creativity and innovation skills, referring to the ability of students in generating and improving solutions to complex problems or tasks based on synthesis, which then combines them or presents what they have learned in new and original ways; (5) Self-direction skill, referring to students who can take responsibility for their learning by identifying topics to pursue and process their own learning, and are able to review their own work and respond to feedback; (6) Global connections, referring to students who are able to understand global issues, geopolitics which include awareness of geography, culture, language, history and literature from other countries; (7) Local connection, which refers to students who are able to apply what they have learned to local contexts and community issues; (8) Use of technology as a tool for learning, refers to students who are able to manage their learning and produce products by using appropriate information and communication technology (Wayudi et al., 2020).

One of the challenges of education today is to build 21st century skills, including information and communication technology literacy skill, critical thinking skill, problem solving skill, effective communication skill and collaborate skill (Suarsana & Mahayukti, 2013). This statement is in accordance with the opinion (Susilawati et al., 2020) which states that one of the goals of 21st Century education is to develop students' thinking skill, one of which is critical thinking skill (Buka et al., 2022). Critical thinking is the process of formulating orderly reasons actively and skillfully from conceptualizing, applying, analyzing, integrating (synthesizing), or evaluating information collected through the process of observation, experience, reflection, reasoning or communication as a basis for determining action. (Lestari et al., 2017).

Critical thinking skill are very important in this 4.0 revolution learning because they play a role in solving problems in everyday life. In addition, critical thinking skill also draw on other skills such as communication and information skills, as well as the ability to examine, analyze, interpret and evaluate evidence (Suciono et al., 2021). However, it is not easy to improve students' critical thinking skill. It is precisely the case in Indonesia, that the problem of low students' critical thinking skill also occurs in the learning activities of some schools. (Santika, Suastra, et al., 2022).

One of the fundamental problems facing education in Indonesia, especially at the school level, is the low level of students' critical thinking skill. Based on the results of the Global Index of Cognitive Skill and Educational Attainment-overall results in 2012, Pearson stated that "Indonesia's

education ranking is at the bottom of the 40 out of 40 countries in the world surveyed. While the results of the PISA (Program for International Student Assessment) survey in 2012 illustrate that Indonesia ranked 64th out of 65 participating countries that took the test, Indonesia's position is only one level above the country Peru. (Santika, Suarni, et al., 2022).

The low level of students' critical thinking skill is due to the learning process that is carried out daily which is considered ineffective in developing the interests, talents and potential that exist within students (Santika, 2017). The cause of the low critical thinking skill of students is that students have not been trained to analyze a problem and the facts found so that as a result the productivity obtained by students in the school is very little (Suriati et al., 2021). This is exacerbated by the learning model used by a teacher is still conventional with repetition teaching methods. In the learning process, teachers mostly use the lecture method and direct students to memorize, while teachers still rarely direct students to think critically. This method of course causes education and mastery of the material taught to be less than optimal and students are also less able to think critically (Handayani & Koeswanti, 2021).

There are actually several learning models that teachers can use to improve students' critical thinking skill. As the research conducted by Syarifah and Yosaphat Sumardi in 2015 entitled about Pengembangan Model Pembelajaran Malcolm's Modeling Untuk Meningkatkan Keterampilan Berpikir Kritis Dan Motivasi Belajar Siswa (Syarifah & Sumardi, 2015). Then Amallia Nugrahaeni's research, Wayan Redhana, Made Arya Kartawan in 2017 about Penerapan Model Pembelajaran Discovery Learninguntuk Meningkatkan Kemampuan Berpikir Kritis Dan Hasil Belajar Kimia. One of the learning models that is believed to encourage students to think critically is the problem-based learning method. The problem-based learning model is considered to be able to change students from passively receiving information to being active (student centered). With this model, it is possible for students to gain new knowledge in solving their life problems. In problem based learning, students' attitudes such as problem solving, thinking, group work, communication and information develop positively. s research conducted by Idris, N. W., Usman, & Subaer in 2020 on Pengaruh Model Pembelajaran Berbasis Masalah Terhadap Kemampuan Berpikir Kritis Peserta Didik found that the average score and achievement category obtained by the experimental class were higher than the control class, this means that there is a difference between the critical thinking skills of students taught using a problem-based learning model with students taught using a direct learning model (conventional). The purpose of this study was to determine the conceptual analysis of problem-based learning models in improving students' critical thinking skills.

RESEARCH METHODS

This research used a qualitative descriptive method by reviewing or examining various existing literature or called a literature study. Descriptive research discusses several possibilities for solving actual problems by collecting data, compiling or classifying, analyzing, and interpreting it. (Santika, 2021b). The data collection technique used in this research is to collect and collect data in the form of documents, both books, articles, research reports obtained from libraries and the internet which relevance topic. Written documents used were books, journals and scientific articles related to conceptual analysis of problem-based learning models in improving students' critical thinking skill (Santika et al., 2021).

RESULT AND DISCUSSION

Students' critical thinking skill can be trained with learning that requires students to do exploration, inquiry, discovery and problem solving so that one of the learning models that can be assumed to be able to improve students' critical thinking skill is a problem-based learning model (Santika et al., 2019). Problem-based learning model is a learning model that uses real-world problems. This learning model aims to encourage students to learn through various real problems in everyday life that are related to the knowledge they have or will learn.

The problems posed in the Problem Based Learning model are not "ordinary" problems or not just "exercises". Problems in PBL demand an explanation of a phenomenon. The focus is on how students identify learning issues and then find alternative solutions. The problem is used as a context for students to learn critical thinking and problem-solving skills, and to acquire essential knowledge and concepts from the subject matter. Not much different from previous research conducted by Nurdiansyah, & Amalia, F. in 2018 on Model Pembelajaran Berbasis Masalah Pada Pelajaran IPA Materi Komponen Ekosistem (Nurdiansyah & Amalia, 2018).

Problem-based learning is a learning model that uses problems as a starting point for learning. In other words, problem-based learning is a problem-centered learning activity. The term centered means being the theme, unit, or content as the main focus of learning (Dolmans et al., 2016). Problem-based learning is a learning model that involves students to solve 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 (Santika, 2020).

The problem is a problem that meets the real-world context both in the textbook and from other sources such as events that occur in the neighborhood, events in the family or society to learn about thinking and problem-solving skills and to gain knowledge and concepts that are essential to the subject matter (Wahyuni et al., 2022). PBM model as one of the models that develop various thinking skills needs to be applied in classroom learning. As previous research conducted by Herayanti, L., & Habibi, H. in 2017 on Model Pembelajaran Berbasis Masalah Berbantuan Simulasi Komputer untuk Meningkatkan Keterampilan Berpikir Kritis Calon Guru Fisika (Herayanti & Habibi, 2017).

The Problem Based Learning model is a form of learning that emphasizes learning experiences so that students can reconstruct their own knowledge through the presentation of real problems so that they are able to learn independently (Khatimah et al., 2022). The problem-based learning model is a learning model that involves dominant student activity, the teacher acts as a facilitator. The advantages of implementing of teaching and learning process include training thinking skill and problem-solving skill, imitating the role of adults in dealing with real situations, and training to learn independently (Rosa & Pujiati, 2017).

This is because in problem-based learning to obtain essential knowledge and concepts from the subject matter, students are given a problem that is a problem in life (Santika, 2018). This learning provides students with a problem to investigate first, and through inquiry and problem solving, students build concepts and principles from the material on their own, integrating previously understood skills and knowledge (Sunaryo, 2014). Students are given the opportunity to solve problems in a collaborative setting, create mental models for learning, and form habits of self-study through practice and reflection (Yew & Goh, 2016).

Therefore, one of the learning models that confront students with ill-structured problems is the problem-based learning model (Santika, Sujana, et al., 2022). In the problem-based learning model, students are first faced with ill-structured, open-ended, ambiguous, and contextual problems. In order to solve the problem, students must learn the material first. That is, students must construct knowledge through the discovery process. After students understand the material related to the problem, students then solve the problem at hand. In the process of problem solving, students work in groups (Redhana, 2013).

The steps of problem-based learning are orienting students to problems, organizing student learning, guiding individual / group experiences, presenting and developing work, and analyzing and evaluating the problem-solving process. More clearly explained in the table 1 Syntax of Problem Based Learning Model (Nurmanita et al., 2019).

Table 1. Syntax of Problem Based Learning Model.

Stage	Teacher's Behavior
Stage-1 Student orientation to problems	Explain the learning objectives explain the logistics needed, motivate students to engage in problem solving activities, and submit problems

Stage	Teacher's Behavior
Stage-2 Organizing students for learning	Divide students into groups, helping students define and organize learning tasks related to problems
Stage-3 Guiding individual / group experiences	Encourage students to gather experimental and inquiry information to get explanations and problem solving.
Stage-4 Develop and present the work	Help students plan and prepare reports, documents or models and help them share assignments with their peers.
5th stage Analyze and evaluate the problem solving process	Helping students to reflect or evaluate their investigation and the process they use.

It can be explained that learning with a problem-based learning model starts with a problem, which in this case can be raised by the teacher, then students deepen their knowledge of what they know and what they need to know to solve the problem (Santika & Sudiana, 2021). The problem used as the focus of learning can be solved by students through group work so that it can provide diverse learning experiences for students such as cooperation and interaction in groups, in addition to learning experiences related to problem solving such as making hypotheses, designing experiments, conducting investigations, collecting data, interpreting data, making conclusions, presenting, discussing and making reports. This situation shows that the problem-based learning model can provide rich experiences for students (Santika, 2021a).

Based on this, it can be seen that the use of problem-based learning models allows students to develop their critical thinking skill to solve problems (Amanda et al., 2018). The teaching and learning process model provides encouragement for students to not only think according to what is concrete, but more than thinking about abstract and complex ideas. In other words, the application of the teaching and learning process model trains students to have higher order thinking skill (Tanjung & Nababan, 2018). Problem-based learning applied to students can improve critical thinking skill (Samura, 2019).

Problem-based learning can develop students' thinking skill. Problem-based learning helps to demonstrate and clarify ways of thinking as well as the richness of the cognitive structures and processes involved. This is because learners' thinking skill are truly optimized. It also optimizes the goals, needs, motivations that direct a learning process that designs various problem-solving cognitions. Therefore, learning that prioritizes problem solving can familiarize learners to think critically (Idris et al., 2020).

CONCLUSION

Based on the discussion above, it was concluded that problem-based learning is a learning model that uses problems as a starting point for learning. In other words, problem-based learning is a problem-centered learning activity; Problem-based learning is a learning model that involves students to solve 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; learning model that uses real-world problems. This learning model aims to encourage students to learn through various real problems in everyday life that are related to the knowledge they have learned or will learn; Problem-based learning model is a learning model that involves dominant student activity, the teacher acts as a facilitator.

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