



## The Process of Learning Through a Problem-Based Model Helps to Address and Correct Historical Misconceptions

Meike Imbar; Darmawan Edi Winoto

History Education Department, Faculty of Social Science and Law, Universitas Negeri Manado, Indonesia

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### **Abstract**

The primary source of misunderstandings arises from learning conditions that disregard students' initial beliefs and varying ideas. This study addressed misconceptions by implementing a problem-based learning model that encourages active student involvement. The courses were carefully designed to offer a more focused approach, allowing students to understand historical concepts better. Action research served as the research methodology to tackle classroom learning issues. Data collection methods included interviews, observations, and documentation. In semi-face-to-face interviews, interviewers posed their inquiries and discussed various subjects. The data were analyzed through organization, segmentation, pattern recognition, selection of relevant information, and drawing of conclusions. Following the Miles and Huberman method, this interactive data analysis process continued until completion. In qualitative research, data analysis typically begins with data collection, followed by data reduction, data presentation, and, ultimately, the derivation of conclusions or verification. The findings revealed that students harbored misconceptions about historical information they had not fully comprehended. While several factors contributed to this, it became evident that the core issue identified through problem-based learning was students' inadequate grasp of the fundamental concepts. This became apparent when students encountered difficulties recalling information when asked questions. Problem-based learning typically consists of five crucial stages, starting with the teacher introducing a challenging scenario to students and concluding with the presentation and analysis of student work.

**Keywords:** *Problem-Based Learning; Misconceptions; Historical Concepts*

### **Introduction**

One pedagogical approach currently gaining popularity and attracting attention from educators is Problem-Based Learning (PBL). This method aligns with the demands of a rapidly changing society that places a high value on creativity, innovation, and competitiveness. PBL is considered creative because it can adapt to students' various situations, conditions, and challenges. In this approach, students are presented with authentic and pertinent problems within their environment and are allowed to devise solutions. It is worth noting, however, that these problems are still integrated into the curriculum framework and aligned with the intended learning outcomes. Problem-Based Learning, often abbreviated as PBL, is recognized as an innovative pedagogical approach due to its departure from conventional

teacher-centered methods. Traditional education often assumes that students lack knowledge and need to be passively filled with information, akin to filling bottles with liquid. This approach renders students passive recipients of knowledge.

In contrast, the perspective on students shifts in problem-based learning methods. They cease to be passive recipients and become active participants, collaborators, contributors, and sources of inspiration in their educational journey. PBL encourages students to problem-solve, ushering in a shift from traditional learning paradigms to a more democratic and contemporary approach. Historical material comprises knowledge focused on studying human life in the past, encompassing historical events and developments. Therefore, comprehending historical material involves understanding past events and recognizing their relevance to the present and, potentially, the future. Consequently, the study of historical material should be conducted meticulously and comprehensively to yield pertinent and valuable insights for the future (Mahardika, 2020).

In the educational context, one approach to implementing the concept of historical material is through the classroom learning process. The PBL learning model plays a pivotal role in school-based educational processes. PBL aids educators in managing the classroom and controlling activities to achieve learning objectives. PBL is a problem-based learning method in which students learn to address foundational problems that serve as a bridge to tackling more complex challenges they may encounter in the future (Boud, 1985). In history education, one of the significant challenges that educators face is the task of rectifying misconceptions, particularly those related to the fundamental attributes of historical knowledge. This challenge arises due to the multifaceted nature of historical interpretation, which can lead to many diverse viewpoints. Furthermore, these misconceptions in history education are often influenced by students' unique historical perspectives, often stemming from their backgrounds (Susanto, Fatmawati, & Fathurrahman, 2022).

Another factor contributing to the emergence of misconceptions is the divergence in understanding concepts between teachers and students. This divergence, referred to as concept comprehension mismatches, represents differences in how teachers convey concepts and how students interpret them. Mahardika (2020) has underscored that students frequently incorporate their pre-existing knowledge into their learning experiences, which can significantly impact their grasp of historical events and concepts. The substantial impact of misconceptions on students underscores the importance of identifying and addressing them. Various methods, such as diagnostic interviews, the presentation of concept maps, the utilization of Problem-Based Learning (PBL) approaches, administering multiple-choice tests with open-ended reasoning, fostering in-class discussions and Q&A sessions, as well as employing written essay tests, can all be employed to detect the presence of misconceptions.

One primary factor contributing to the prevalence of misconceptions is the failure of the learning environment to consider students' preconceived notions or initial concepts. Each student brings with them a unique set of initial concepts. Consequently, educators must consider students' preconceptions before introducing new concepts or information. This approach ensures that newly introduced concepts align harmoniously with the existing cognitive structures of students, thereby reducing the likelihood of misconceptions. Misconceptions can also arise when traditional teaching methods fail to actively engage students in the learning process, causing them to overlook the concepts the teacher elucidates. This research addresses and mitigates misconceptions by implementing a Problem-Based Learning (PBL) model designed to enhance student participation. Students can attain a more profound understanding of the subject by focusing on historical content. The emphasis is on fostering active student engagement to grasp key historical concepts within the classroom. This is accomplished by presenting cases that enable students to analyze and discover solutions related to the fundamental terms and concepts within historical knowledge.

## **Literature Review**

### **Understanding Misconceptions**

Misconceptions, in the context of mathematics, refer to ideas or interpretations that diverge from the established scientific understanding or the consensus upheld by experts in the field (Suparno, 2013: 4). These misconceptions manifest as flawed interpretations of mathematical concepts, representing explanations or notions that contradict the accepted scientific understanding endorsed by experts. Such misconceptions can encompass various forms, including inaccuracies in grasping concepts, improper mastery of mathematical principles, incorrect categorization of examples illustrating concept application, multiple interpretations of concepts, confusion between distinct mathematical notions, and erroneous hierarchical relationships among mathematical ideas.

Several experts in Suparno's work (2013: 4-5) also define misconceptions. According to Novak (1984), misconceptions are unacceptable interpretations of mathematical concepts within a statement, involving errors and incorrect associations between these concepts. Based on these viewpoints, it can be concluded that misconceptions entail conceptual errors that deviate from the established scientific understanding. In essence, misconceptions can be defined as interpretations of mathematical concepts within a statement deemed unacceptable or ideas that do not align with the established scientific understanding. These misconceptions involve inaccuracies in comprehending mathematical concepts, the use of incorrect mathematical principles, confusion between different mathematical notions, and misguided hierarchical relationships among mathematical ideas.

Experts often arrive at a consensus regarding specific mathematical concepts within the realm of education, while students frequently possess varying understandings of these concepts, commonly referred to as conceptions (Tayubi, 2005). This issue of misconceptions holds particular significance, particularly in the context of Indonesian History subjects. History involves the narratives of past events, which are interpreted to provide a comprehensive understanding (Sriwati, Rochgiyanti, Akmal, Fathurrahman, & Jamaludin, 2022). In history education, the primary focus lies in examining past occurrences. It is worth noting that historical facts presented in society can often be inaccurate, especially in historical accounts that favor a Dutch-centric perspective.

Furthermore, there are efforts to intertwine history with political interests. This necessitates historians to maintain continuous engagement with historical sources. Some scholars have even argued that Dutch colonialism, which spanned 350 years, did not extend to the entire territory of Indonesia, as asserted by Resink (2013). Several kings and sultanates maintained their independence until 1910, not only in Sumatra but also on other islands.

### **1. Characteristic features Learning Based Problem (*Problem-Based Learning*)**

Various learning models exist in education, each possessing unique characteristics that set them apart. One illustrative model is problem-based learning (PBL), distinguished by several notable traits. To begin with, PBL encompasses activities from initial planning to subsequent evaluation. Throughout the learning process, students are expected to do more than simply absorb lesson content; they are actively engaged in critical thinking, communication, information retrieval, data processing, and, ultimately, the synthesis of conclusions. This approach encourages students to become active participants rather than passive observers. Another critical aspect of problem-based learning is its emphasis on the pivotal role of problems in the learning journey. Learning is seen as inseparable from the presence of challenges. Educators must create opportunities for students to identify their problems, which should be contextually relevant and aligned with the curriculum and learning objectives.

Moreover, problem-based learning adheres to a scientific approach, employing deductive and inductive reasoning. This systematic thought process is firmly grounded in empirical data and facts.

Additionally, the PBL model embraces distinctive features that distinguish it from other learning models, such as its student-centered orientation, which aligns with the constructivist theory, emphasizing that students should actively construct their knowledge.

In the field of education, several fundamental principles merit consideration. Firstly, authentic problems take center stage in the learning process. This implies that students are presented with real-world problems, enabling them to grasp and apply solutions professionally. The significance of authenticity is closely tied to the objective nature of scientific inquiry, which necessitates logical progression, the formulation of hypotheses, and subsequent verification. Secondly, independent learning serves as a means of acquiring new knowledge. In problem-solving, students often need to seek information from sources such as books or references, making self-directed inquiry an integral part of the learning experience. Thirdly, learning occurs within small groups, fostering scientific interactions and collaborative exchange of ideas in knowledge construction. These groups require clearly defined roles and well-established objectives. Lastly, the teacher assumes the role of a facilitator. In problem-based learning, the teacher is a supportive guide, overseeing students' activities while encouraging them to achieve their learning goals.

### **Problem-Based Learning Steps**

Implementing problem-based learning is a matter that demands serious consideration due to its unique characteristics setting it apart from other educational models. Errors made at any stage of its implementation can have significant repercussions on subsequent phases. In this context, we will delineate the stages of the Problem-Based Learning Model, initially proposed by John Dewey, a renowned American educational expert. Dewey introduced a six-step framework for problem-based learning, which comprises the following:

1. **Problem Identification:** The teacher guides students in identifying the problem to be addressed in the learning process, although, in practice, the teacher may have preselected the problem.
2. **Problem Analysis:** Students are required to examine problems from various angles critically.
3. **Hypothesis Formulation:** Students must generate multiple solutions based on their existing knowledge.
4. **Data Collection:** Students search for and gather the information needed to resolve the problems.
5. **Hypothesis Testing:** Students test their formulated hypotheses and subsequently draw conclusions based on whether these hypotheses are accepted or rejected.
6. **Formulating Solution Recommendations:** Based on the results of hypothesis testing and the conclusions drawn, students outline recommendations for solutions.

These steps collectively constitute an integral component of the Problem-Based Learning Model, which aids students in developing a deeper understanding of problems and their problem-solving abilities. In summary, the stages of this learning model encompass the following:

1. **Problem Awareness:** The process commences with comprehending the problem that requires attention. Students should be able to identify discrepancies between human beings and their social environment.
2. **Problem Formulation:** This stage emphasizes a clear understanding of the problem, its significance, and its connection to acquiring necessary data. Students are expected to prioritize problems.
3. **Hypothesis Generation:** Students should be capable of identifying the causes and consequences of the problem they intend to address and proposing various potential solutions.
4. **Data Collection:** Learners are empowered to collect pertinent data, organize it, and present it in various formats to enhance comprehension.
5. **Hypothesis Testing:** Students should be able to analyze and discuss the relationship between the hypotheses and the problem being tested.

6. Solution Selection: The capacity to select possible alternative solutions and consider the potential outcomes of the chosen alternative is essential.

### ***Research Method***

The research methodology employed in our study is action research, primarily aimed at addressing educational challenges within the classroom. Furthermore, this research also encompasses descriptive research, as it elucidates the application of a particular teaching approach and the means to achieve desired outcomes. According to its definition, action research pertains to investigations into events occurring within a community or a specific target group, with outcomes directly applicable to that community. Active participation and collaboration between researchers and target group members are fundamental to action research. It is a problem-solving approach that utilizes practical interventions, often experimentally and adaptively, to identify and resolve issues. During this process, all involved parties collaborate and support one another.

Sukidin et al. categorized action research into four types: (1) teacher-initiated action research, (2) collaborative action research, (3) integrated simultaneous action research, and (4) experimental social action research. These categories share similarities but also exhibit distinctions. As explained by Oja and Smulyan, as cited by Kasbolah, the specific characteristics of each type of research depend on several factors, including the primary objectives, the degree of collaboration between the researcher and external parties, the research process, and the relationship between the project and the educational institution.

Interviews served as the primary data collection method when researchers sought to identify research topics or gather additional insights from respondents. Semi-structured interviews involved the researcher posing questions and encouraging respondents to provide open-ended opinions and perspectives. During these interviews, meticulous note-taking was essential to capture the information provided by the participants. In addition to interviews, data collection also incorporated observations and document analysis. Observers acted as guides during observations, which, in this research, adopted a passive participatory approach, involving the researcher observing activities without direct participation. Observation guidelines focused on the physical environment, facilities, and infrastructure. Documentation methods include visitor data, museum performance records, photographs, artwork, museum artifacts, brochures, and catalogs.

Data analysis in this qualitative research involved organizing, categorizing, identifying patterns, selecting relevant information, and drawing conclusions. Qualitative data analysis occurred at multiple stages, both before and following fieldwork. As per Miles and Huberman, qualitative data analysis is an interactive and ongoing process until the study's completion. This analysis typically begins with data collection, then data reduction, data presentation, and concluding with the interpretation and verification of findings. The data collection phase commenced by employing the data collection techniques established at the outset, ensuring comprehensive coverage of informants, activities, settings, and contextual elements. Subsequently, data reduction involved simplifying and condensing field notes. Data presentation comprised the structured organization of information to facilitate drawing conclusions and actionable insights. Verification and interpretation involved making sense of the displayed data, contributing to a deeper understanding of the research outcomes.

### ***Results and Discussion***

In history education, the conceptual approach plays a pivotal role. As a discipline, history delves into the study of humanity within the context of time and space. Its purview extends beyond merely exploring the past; it scrutinizes historical artifacts and sources such as documents, archives, written records, information, and oral accounts. When integrating history into the educational process, it can be

perceived from two distinct perspectives: as an integral component of cultural knowledge and an integral component of the social sciences. Within the educational sphere, diverse historical topics are taught, each laden with distinctive cultural values attributed to particular groups, factions, or ideologies that have shaped history. As aptly noted by Sam Winerbung, history broadens our concepts and understanding of what it means to be human.

The concepts that emerge in learning history as cultural knowledge heighten our awareness as they encompass cultural notions and values, such as heroism, the spirit of sacrifice, national unity, and humanity, among others. Conversely, to grasp history as a multifaceted reflection of human existence, it becomes imperative to acknowledge that historical knowledge constitutes a facet of the social sciences. In this light, the human experience extends beyond a mere chronology of events, dates, individuals, and geographical locales. Instead, it encompasses an intricate web of interactions involving structures, individuals, and communities that have evolved continuously from the past to the present. This comprehensive perspective can be effectively elucidated through applying various concepts within social sciences (Prinz et al., 2022).

The concepts employed for explanatory purposes in history pedagogy draw from disciplines such as Anthropology, Sociology, Politics, Economics, Geography, and Social Psychology while remaining anchored within the framework of historical science.

A concept represents a comprehension that pertains to something; it serves as a guide in selecting and prioritizing relevant facts. Concepts also facilitate the organization of discrete facts and establish connections among specific facts to construct a coherent narrative. In doing so, they simplify our comprehension of past events, the prevailing ethos of the respective era, and the underlying reasons that propelled these events. For instance, Denys Lombard's "Nusa Java; Cross-Cultural" work can be analyzed and elucidated by applying concepts such as structure and events. Lombard's historical narrative unfolds in a reverse chronology, commencing from a contemporary period and tracing back to earlier and more ancient times. Volume 1 discusses the boundaries of Western influence, followed by Volume 2, which explores Asian networks encompassing the influence of Islam and China, and culminating in Volume 3, which delves into the realms of concentric kingdoms influenced by "Indianization." Consequently, a diverse array of concepts, including but not limited to structure, events, time, physical and social space, cultural and social values, transformation, power and authority, conflict, norms, values, interactions, cultural enculturation and acculturation, goods and services, and economic interdependence, vividly illuminate the intricate tapestry of conditions that prevailed during that era through the interdisciplinary application of concepts from various social science domains.

The contemporary challenges confronting both students and educators are intimately connected to the strategies employed for comprehending historical texts, given that the discipline of history heavily relies on archival materials from bygone eras. This entails not merely perusing the text but also precisely grasping and deciphering its contents. At a heightened cognitive level, reading historical texts can catalyze cultivating wisdom among students, as it embodies a historical inquiry process that scrutinizes the text's content through diverse conceptual frameworks. In their empirical study, Bell and David F. McCollum shed light on various metrics for assessing historical comprehension, including:

1. The capacity to discern contemporary events through a historical lens.
2. The ability to sift through and categorize information culled from diverse sources, such as news articles, anecdotes, biased accounts, and historical narratives of the past, and synthesize this plethora of data into a coherent and rational narrative of past occurrences. This skill is paramount, especially for adept and devoted college history instructors.
3. The aptitude to empathize with and appreciate historical narratives.
4. Responses are grounded in a comprehensive, rigorous, and critical analysis of intricate questions and profound reflections" about specific historical contexts.

##### 5. Proficiency in responding to inquiries based on factual knowledge about historical figures and events.

The outcomes of this investigation underscore a profound realization that educators in history and educational policymakers must acknowledge the far-reaching and profound implications associated with the cultivation of historical thinking skills. This extends beyond the purview of history as a mere subject within the curriculum, delving into the intricacies of human existence as observed in our everyday social milieu.

#### **The Problem-Based Learning Model as a Remedy for Rectifying Misconceptions in Historical Understanding**

Misconceptions frequently arise when students draft historical information, a domain that often eludes their complete comprehension. This predicament is multifaceted. Nonetheless, it is discerned that, when employing the problem-based learning approach, the crux of the issue lies in students' failure to grasp the underlying concepts. This, in turn, results in instances where students tend to forget the material when subsequently questioned. Students should not be confined to mere rote memorization; instead, they should endeavor to grasp the subject matter thoroughly. This way, when confronted with queries, they can expound upon it using their own words."

Initiating endeavors to rejuvenate history education to confront these challenges is imperative. As suggested by Asvi Warman Adam, this revitalization should involve a heightened focus on pertinent aspects that prioritize the cultivation of national identity. Djoko Surjo, on the other hand, advocates for an approach to history teaching that incorporates a "historical-sociological" perspective. This approach emphasizes utilizing a conceptual framework encompassing historical, factual, procedural, and structural dimensions. Consequently, teaching materials should be presented within a historical context, encompassing diachronic (procedural) and synchronic (structural) dimensions, encompassing political, economic, social, and cultural facets. The advent of computer and information technology provides opportunities for engineering in the design of learning plans to enhance history education. Technological engineering for learning offers numerous benefits, including creating diverse learning media and teaching materials.

While there is a pressing need for innovation in the delivery of teaching materials, progress in this area has been somewhat limited. To combat students' disinterest in studying history, it is crucial to pioneer new models and generate resources and teaching materials that ignite understanding and enthusiasm for history learning. These essential teaching materials should align with the curriculum's format and be presented in a "historical-sociological" fashion, employing a conceptual approach to achieve the curriculum's history lesson objectives. In light of these considerations, innovations are being introduced into history learning activities to translate these concepts into practical implementation. History educators should concentrate on stimulating students' interest in history subjects. Under the definition of education articulated in the national education system law, education represents a deliberate and organized effort to facilitate a learning process that nurtures students' development.

Consequently, teaching history becomes the responsibility of the curriculum planner, who is conscious of the learning goals. This entails a strategic shift to transform history learning from a mundane experience into an engaging and enjoyable one. The successful attainment of educational objectives hinges on the coherent modification of learning strategies, encompassing methods, media, and learning resources.

This discussion enables us to grasp the role of historical science in various concepts within the field of social sciences. These concepts serve as tools to illustrate the interconnections between different ideas within the social sciences and the explanations offered for historical events. This alignment with educational objectives ensures that historical teaching materials encompass a comprehensive

understanding of the past, present, and future dimensions when explaining historical events. By examining several examples of concepts within the realm of history and the descriptions provided for these concepts, we gain insight into how historical facts are documented by historians and authors of history textbooks. These texts cover various events spanning different periods and aspects of life. When incorporating concepts from various social science disciplines, they can be seamlessly integrated and presented with clarity.

In the context of history lessons, historical knowledge draws from multiple social science fields, including sociology, economics, politics, geography, and social psychology. The learning process encompasses various elements, including the implementation of education, the participation of educators and learners, curriculum design, learning environments, and educational policies. In a competency-based history curriculum, the desired learning process commences with the teacher's syllabus preparation, forming the foundation for the subsequent learning activities. According to the insights of S. Hasan, every learning process associated with competence comprises the following key activities:

1. Gathering information within the preliminary historical context.
2. Comprehending the information within the preliminary historical context.
3. Applying the information within the preliminary historical context.
4. Utilizing the information within the preliminary historical context.

The conceptual approach to history learning also pertains to information dissemination, comprehension, utilization, and application by employing concepts derived from cultural knowledge and social sciences. As Ausubel suggests, a pivotal factor influencing learning is the pre-existing knowledge possessed by students. Meaningful learning occurs when students can connect new information to their existing cognitive structures or knowledge base. Consequently, the process of seeking information based on cultural or social concepts is of paramount importance. The ability to locate sources, select pertinent concepts relevant to the material, and learn to apply them enhances the depth of comprehension of historical knowledge (Kristianti, Muchyidin, & Benefits, 2022). In activities related to comprehending information, students can choose from various sources to identify facts, concepts, generalizations, and values. These assignments, focusing on specific topics, indicate the fundamental competencies that students are expected to attain. If students have not completed these assignments, it becomes imperative for the teacher to facilitate a discussion process before progressing to subsequent content.

Utilizing information entails applying comprehended knowledge in novel contexts and across different subjects. In the context of history education, it is intertwined with various societal issues and challenges. Information utilization constitutes the highest echelon of cognitive activities, allowing students to cultivate their unique identity. Students actively employ information based on their initiative and creative thinking during this phase. The developers of problem-based learning have delineated the critical characteristics of the problem-based learning model as follows:

1. Inquiry and Problem Posing: Problem-based learning initiates with formulating questions or presenting real-world problems rather than organizing around specific principles or skills. It revolves around inquiries or problems that hold societal significance and personal relevance for students. This approach presents genuine, complex scenarios, avoiding simplistic solutions and encouraging multiple approaches to problem-solving (Assem et al., 2023).
2. Interdisciplinary Emphasis: While PBL may center on a particular subject, the selected problem is authentically rooted in real-life contexts. When addressing it, students draw upon insights from various academic disciplines.
3. Genuine Research: The problem-based learning model mandates that students engage in authentic research to uncover tangible solutions to real problems. They must scrutinize and define issues, formulate hypotheses and predictions, gather and analyze data, conduct experiments (when necessary), make informed deductions, and arrive at conclusive findings.



4. **Creation of Tangible Outputs and Presentation:** PBL necessitates students to produce concrete outputs through tangible works, artifacts, or presentations that elucidate or represent their problem-solving methodology. These outputs may manifest as reports, physical models, videos, or computer programs. Subsequently, students present these tangible works to others to showcase their acquired knowledge, offering a departure from conventional reports or essays.
5. **Collaboration:** The problem-based learning model is characterized by collaborative endeavors among students, often in pairs or small groups. Collaborative work catalyzes sustained engagement in intricate tasks, enhances opportunities for shared inquiry and discourse, and nurtures the development of social and cognitive skills.

### **Principles in Applying Problem-Based Learning**

Problem-based learning is a pedagogical approach that centers around students collaboratively addressing problems within small groups guided by a tutor. The problem itself serves as a novel context for learning, wherein the analysis and resolution of the problem lead to the acquisition of knowledge and the development of problem-solving skills. Unlike traditional methods, students engage with problems before fully grasping all relevant information. In contrast, problems are typically tackled after extensive reading or lecture-based instruction on the subject matter. This distinctive characteristic sets Problem-Based Learning (PBL) apart from other problem-oriented instructional methods (Ferretti, MacArthur, & Okolo, 2007).

The tutor's role in this context is akin to that of a group coach, assisting in fostering productive student interactions and helping students pinpoint the specific knowledge required to address the problems at hand. As a result of this problem-solving process, students generate questions, often referred to as learning issues, about the necessary knowledge for problem resolution. Subsequently, students engage in independent research to address these identified learning issues, drawing from various information sources. To facilitate this, students are allocated adequate time for self-directed study. The PBL process is considered complete when students share the outcomes of their research, presenting what they have learned during the subsequent meeting. The primary objective of this presentation is to illustrate the connection between the newly acquired knowledge and the current problems being addressed. A secondary aim is to facilitate the transition to a broader understanding, enabling the transfer of this newfound knowledge. Following the conclusion of this problem-solving cycle, students move on to analyze a new problem, repeating the sequence of analysis, research, and presentation (report).

#### **Learning Objectives and Outcomes**

It is important to note that Problem-Based Learning does not intend to overwhelm students with abundant information. Instead, PBL was conceived to nurture critical thinking skills, expand knowledge, enhance problem-solving abilities, and foster intellectual and self-directed learning skills (Suprpto, 2020).

**Development of Critical Thinking and Problem-Solving Skills** The primary objective of Problem-Based Learning is to cultivate higher-order thinking skills, distinguishing them from skills associated with routine or habitual behaviors. Larson (1990) and Lauren Resnick delineate the characteristics of these higher-order thinking skills as follows. Importantly, these skills are teachable, and most programs and curricula developed for this purpose heavily draw upon an approach akin to problem-based learning.

In adult role modeling, Resnick underscores the significance of problem-based learning as a pivotal bridge between formal education within school walls and the practical cognitive endeavors encountered beyond those confines. These cognitive endeavors outside the school environment encompass the cultivation of self-direction in learning, often referred to as self-directed learning. Problem-based learning, at its core, places students at the center of the educational process, necessitating

their ability to independently discern what needs to be learned and how to access the requisite information, albeit under the guidance of their instructors (Barrows, 1996). Through continuous encouragement and guidance from teachers, who encourage students to pose inquiries and autonomously devise solutions to authentic problems, learners acquire the vital skillset to carry out such tasks independently in their future endeavors.

### Stages of Problem-Based Learning

The process of Problem-Based Learning typically unfolds through five primary stages, commencing with the teacher introducing students to a real-world problem scenario and culminating in the presentation and scrutiny of the outcomes arising from the students' efforts. To provide a concise overview, these five stages of PBL learning are outlined in Table 1, focusing on their application within the context of historical concepts.

Stage	Teacher Activities
Stage 1 Student orientation to the problem draft history	The teacher explains the learning objectives and logistics required and motivates students to participate in their chosen problem-solving activities. The teacher discusses the rubric assessments that will be used in assessing student activities/work results
Stage 2 Organizing students to study draft history	Teachers help students define and organize learning tasks related to conceptual problems that history.
Stage 3 Guiding individual and group investigations	Teachers encourage students to collect concept information appropriate to history, experimenting to obtain explanations and solve problems from draft history.
Stage 4 Develop and present work results	Teachers help students plan and prepare concepts appropriate to history, such as reports, videos, and models, and help them share assignments with friends.
Stage 5 Analyze and evaluate the problem-solving process draft history	Teachers help students to reflect or evaluate concepts investigations, their history, and the processes they use

### Problem-Based Learning Assessment

In the problem-based learning (PBL) context, it is essential to note that assessment methods should extend beyond traditional paper-and-pencil tests. Instead, the evaluation techniques employed in PBL focus on appraising students' outputs resulting from their investigative work. This approach aligns with other contextual learning models and encompasses performance assessments and portfolio evaluations.

This divergence from conventional assessment methods is notable. Establishing criteria for evaluating performance tasks and outcomes should commence early in the learning process and involve students actively. Initial discussions with students may encompass topics such as their desired grades and who will be responsible for assessing their work, whether the instructor, peers or external experts. These discussions also entail the creation of rubrics. Initiating these activities at the outset of the learning journey renders project or problem task outlines more tangible for students, facilitating their ability to contemplate and discuss essential concepts.

## Conclusion

Problem-based learning is not primarily geared toward inundating students with information. Instead, PBL is designed to nurture critical thinking skills, enhance knowledge and problem-solving abilities, foster intellectual growth, and engage students in real-world experiences that prepare them for adult roles. PBL underscores the development of practical self-directed learning skills and is inherently student-centered. Students are expected to identify their learning objectives and explore conceptual information under the guidance of an instructor.

The stages of Problem-Based Learning encompass five key phases: orienting students to the problem and progressing through organizing students for studying, guiding individual and group investigations, developing and presenting work results, and finally, analyzing and evaluating problem-solving processes. As mentioned, establishing assessment criteria for performance tasks and outcomes should be initiated at the beginning of the learning journey and actively involve students. Early discussions about rubrics and initiating project or problem task outlines prove particularly advantageous for students as they encourage critical thinking and the exchange of essential ideas.

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