Implementation of Curriculum and Learning Models in Improving the Quality of Education

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ABSTRACT

Curriculum is an essential component in education that needs to be continuously updated to keep pace with the development of the times. This study aims to examine curriculum implementation and the role of learning models in improving the quality of education. The method used is a literature study by analyzing various relevant sources. The results show that curriculum implementation involves several stages, namely planning, implementation, and evaluation of learning, and is influenced by teacher competence, school management, and facilities and infrastructure. In addition, the use of learning models such as Problem Based Learning (PBL), Project Based Learning (PJBL), Discovery Learning, Inquiry Learning, and Problem Solving can enhance students' activeness and critical thinking skills. Therefore, effective curriculum implementation and the appropriate selection of learning models can improve the overall quality of education.

Keywords: *Curriculum Implementation, Learning Models, Quality of Education*

A. INTRODUCTION

The curriculum is an essential component in the field of education and in schools. Curriculum updates are necessary to ensure education keeps pace with the times. This is important to prepare the younger generation to face continuous changes, especially those driven by advancements in science and technology as well as globalization. Therefore, mastery of science and technology has become a crucial need in today's life.

In the global landscape, the education sector is currently undergoing a massive paradigm shift, driven by the emergence of Society 5.0 and the Industrial Revolution 4.0. Society 5.0 demands human resources who are not only technologically literate but also possess complex problem-solving abilities, high creativity, and adaptive collaboration skills (Fukuyama, 2018). Consequently, educational institutions are forced to re-evaluate their curriculum implementation to ensure that students can survive and thrive in this human-centered technological era. In Indonesia, this urgency is very pronounced, given that the country's educational quality still faces critical challenges. Based on the Program for International Student Assessment (PISA) data, Indonesian students continue to struggle in reading, mathematics, and science, placing Indonesia below the OECD average (OECD, 2023). This empirical fact indicates an underlying mismatch between curriculum planning and actual classroom practices, underscoring the absolute

necessity of examining how curriculum frameworks are delivered dynamically.

In this era, learning requires students to be active in developing their ideas, while still relying on the teacher's creativity in designing learning models that suit students' needs. The required learning models are those that are innovative, active, creative, and engaging. The selection of learning models must also be adjusted to the material being delivered.

A learning model is one of the key aspects of instruction that serves as a guideline for organizing learning activities. In implementing the steps of a learning model, teachers use approaches, strategies, methods, techniques, and tactics to support the learning process. Meanwhile, a learning model provides a structured framework for conducting all forms of learning activities to achieve effective learning objectives (Rosmala, 2021).

In line with this, the success of a curriculum is not only determined by good planning but also by its implementation in the classroom. Curriculum implementation requires teachers to translate curriculum goals into effective teaching practices by selecting appropriate learning models. Therefore, the relationship between curriculum implementation and learning models is very important to examine, as both play a significant role in improving the quality of the learning process and overall educational outcomes.

To bridge this competency gap and address the low quality of education, the Indonesian Ministry of Education, Culture, Research, and Technology initiated a major structural reform by implementing Kurikulum Merdeka (the Independent Curriculum). This curriculum emphasizes flexible, student-centered, and contextualized learning experiences (Maulana et al., 2025). However, shifting from a conventional teacher-centered paradigm to a highly flexible instructional system poses significant practical challenges. Recent literature demonstrates that the nationwide implementation of Kurikulum Merdeka is heavily constrained by structural issues, including disparities in school facilities, a lack of comprehensive teacher training, and teachers' resistance to abandoning rote-learning techniques (Sufyadi et al., 2022). Therefore, investigating the actual execution of this curriculum is highly urgent, as the mere existence of a well-written policy document cannot guarantee educational quality improvement without effective classroom operationalization.

Despite widespread theoretical discussions of pedagogical models, there remains a lack of a comprehensive synthesis of how specific collaborative and inquiry-based learning models interact directly with the newly established implementation criteria of contemporary curricula in developing countries like Indonesia. Most existing studies examine learning models or curriculum reform in isolation, without mapping the concrete operational dependencies, such as teacher capacity and infrastructure availability, that determine their joint success.

To address this gap, this study formulates the following explicit research questions:

a) How is the curriculum systematically implemented across the planning, execution, and evaluation phases to improve educational quality?
b) What is the structural role of innovative learning models (PBL, PjBL,

Discovery, Inquiry, and Problem Solving) in bridging the gap between curriculum goals and student competency outputs?

c) What are the critical success factors and institutional barriers that affect the synergy between curriculum frameworks and active learning models in modern classrooms?

Literature Review

The Evolution of Curriculum Implementation and Learning Models: From Classical to Contemporary Paradigms

The implementation of a curriculum and the integration of learning models cannot be separated from the continuous shift in educational philosophies. In classical educational theory, curriculum implementation was often viewed through a structural-systemic lens. Isjoni (2014) emphasized that curriculum implementation relies heavily on rigid alignment of cooperative frameworks, in which structural components within educational institutions must work in unison. Within this traditional paradigm, the selection of learning models was largely confined to standardized group behaviors aimed at stabilizing student output. This perspective was further expanded by Rusman (2017), who posited that curriculum implementation is a systematic process bound by national educational process standards. According to this classical view, a learning model serves primarily as a structured blueprint or guideline for teachers to organize classroom activities step by step to achieve predefined, rigid institutional objectives. In these older frameworks, the teacher's primary role was that of an executor of written policy documents, and the learning models were treated as technical toolkits rather than adaptive pedagogical ecosystems.

However, the dawn of the digital era and structural state reforms have forced a dramatic paradigm shift, rendering classical, rigid assumptions insufficient. Recent literature has heavily reframed curriculum implementation not as a fixed administrative routine but as a highly dynamic, flexible, and organic phenomenon. For instance, in the context of Indonesia's current structural shift, Maulana et al. (2025) demonstrated that modern curriculum implementation, specifically Kurikulum Merdeka, demands a departure from centralized uniformity, shifting the focus toward autonomous teacher adaptation and localized, student-centered learning activities. This contemporary view recognizes that curriculum success is not determined by passive adherence to a script, but by the teacher's professional capacity to translate abstract policy goals into contextual teaching practices.

Concurrently, the conceptualization of learning models has evolved from mere procedural guidelines into fluid, cognitive-constructivist vehicles. Lestari et al. (2023) argued that in the era of Society 5.0, innovative learning models such as Problem-Based Learning (PBL) and Project-Based Learning (PjBL) are no longer just pedagogical choices but mandatory strategic frameworks rooted in deep social constructivism. Modern research shows that these contemporary learning models are designed to actively trigger mental activities, allowing students to independently build and contextualize knowledge through real-world problem-solving and social interaction (Lestari et al., 2023). While classical theories (e.g., Isjoni, 2014; Rusman, 2017) focused on

standardization and systemic process management, contemporary studies (e.g., Lestari et al., 2023; Maulana et al., 2025) prioritize flexibility, technological integration, higher-order thinking skills (HOTS), and the active agency of both teachers and students in navigating global changes.

Identification of the Research Gap

Despite the extensive literature on curriculum updates and the theoretical benefits of 21st-century learning models, a critical pedagogical gap remains unresolved. Most existing studies tend to evaluate curriculum implementation and active learning models in total isolation. On the one hand, policy-oriented research thoroughly analyzes the structural bottlenecks to curriculum change from an administrative perspective. On the other hand, classroom-oriented action research heavily documents the isolated efficacy of specific models, such as PBL or PjBL, on student test scores.

What is severely lacking in the current academic literature is a comprehensive thematic synthesis that maps the precise operational alignment between the new, flexible assessment criteria of contemporary curricula and the technical indicator-level deployment of multiple active learning models. Very few studies examine how institutional barriers, such as teacher competence disparities, administrative overloads, and infrastructure limitations, simultaneously distort the implementation of both the curriculum and these innovative models within a single integrated classroom framework. This article directly addresses this research gap by utilizing a systematic literature review to provide an empirical synthesis of how curriculum planning and diverse active learning models interact as a unified, complex ecosystem, thereby establishing their profound relevance for modern educational development.

B. METHODS

This study uses a literature review approach. Research employing a literature study is conducted by collecting information from various sources such as books, journals, and articles related to the research problem (Sari, 2020). This approach requires the researcher to read and explore relevant references that are connected to the topic being discussed.

In this context, a literature review is considered an appropriate and effective method. In this study, the literature review involves a series of activities related to collecting library data, reading, taking notes, and systematically managing research data in an objective, analytical, and critical manner regarding the implementation of the curriculum and learning models in improving the quality of education.

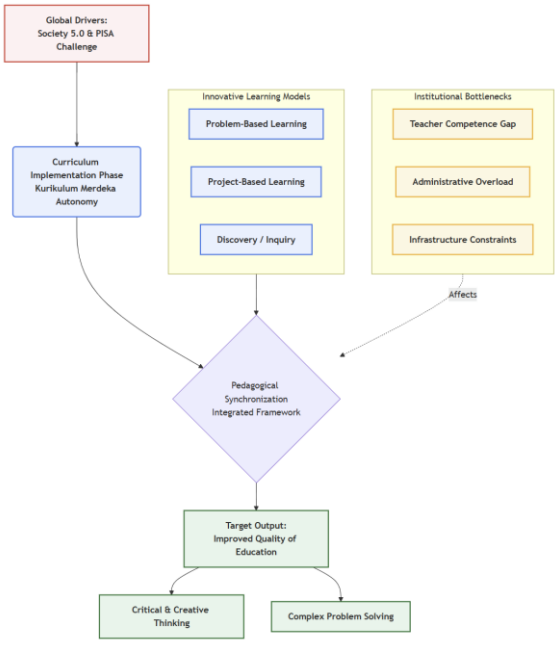

Figure 1. Conceptual Framework

1. Eligibility Criteria and Search Strategy

To ensure high-quality, contextually relevant data, strict inclusion and exclusion criteria were established before the database search.

Inclusion Criteria: (1) Peer-reviewed journal articles and academic research books focusing on educational curriculum implementation, curriculum management, and specific learning models (PBL, PjBL, Discovery, Inquiry, and Problem Solving); (2) Literature published within a 12-year window, spanning from 2014 to 2026, explicitly capturing the evolution from foundational educational standards to contemporary Society 5.0 dynamics and Kurikulum Merdeka adjustments; (3) Materials written in English or Bahasa Indonesia; (4) Open-access full-text availability.

Exclusion Criteria: (1) Non-peer-reviewed working papers, conference abstracts, opinions, or blog posts; (2) Studies focusing on curriculum implementation outside the primary, secondary, or higher education framework; (3) Articles published prior to 2014, unless classified as seminal classical theories.

The literature search was conducted across three main digital databases: Google Scholar, Scopus, and Sinta (Science and Technology Index). The strategic search strings utilized a combination of Boolean operators (AND, OR), including: ("curriculum implementation" OR "curriculum management") AND ("learning models" OR "Problem Based Learning" OR "Project Based Learning") AND "education quality".

2. Selection Flow and Source Summary

The initial database search yielded 145 potential sources. After removing duplicate entries (n = 35), the remaining 110 articles were meticulously screened against the eligibility criteria. This phase eliminated 65 articles that did not explicitly align with the thematic scope. Subsequently, 45 full-text articles were rigorously assessed for quality and methodology, leaving a final sample of 13 core sources that were selected for comprehensive thematic extraction and analysis.

3. Analytical Approach

This study applies a qualitative thematic analysis approach to synthesize the extracted library data. Rather than merely presenting descriptive summaries of each paper, the analysis employs a comparative and thematic lens. Data analysis follows the multi-tiered framework established by Miles, Huberman, and Saldaña, which consists of three concurrent streams of activity:

First, data condensation was performed by extracting relevant indicators, variables, and dimensions from the selected text corpora. Second, data display was structured by clustering the findings into two major core themes: (a) multi-level dimensions of curriculum implementation, and (b) pedagogical mechanics of active learning models in modern classrooms. Third, conclusion drawing and verification were executed through continuous cross-comparative mapping between classical standards and contemporary demands. This comparative thematic mapping allows the study to thoroughly explore the conceptual interaction between curriculum management constraints and classroom-level learning execution, ensuring a highly rigorous synthesis.

C. RESULTS AND DISCUSSION

Curriculum Implementation

Curriculum implementation is a crucial process in the education system that connects curriculum planning with classroom learning practices. At this stage, the curriculum is no longer merely a written document but is embodied in concrete activities involving teachers, students, and the school environment. The curriculum plays a strategic role as a guideline for achieving educational goals, so its successful implementation significantly determines the quality of student learning outcomes (Dahliah, 2022).

In its implementation, curriculum encompasses several main stages: planning, implementation, and evaluation of learning. During the planning stage, teachers develop learning materials aligned with the curriculum. The implementation stage is carried out through classroom teaching and learning activities, while the evaluation stage measures the achievement of learning objectives. Research shows that effective curriculum implementation actively involves all educational components, from teachers and students to school management (Dahliah, 2022).

The success of curriculum implementation is greatly influenced by various factors. One key factor is teacher competence. As curriculum implementers, teachers play a crucial role in translating the curriculum into effective learning activities. In the context of the latest curriculum, such as the Independent Curriculum, teachers are given the freedom to adapt learning to the needs and characteristics of students, making learning more flexible and student-centered (Maulana et al., 2025).

In addition, curriculum management in schools also plays an important role in supporting curriculum implementation. Good curriculum management helps align educational goals, learning materials, and the strategies used. Research findings show that implementing integrated curriculum management can improve the quality of learning and student outcomes (Hidayat, 2024).

Another factor that influences curriculum implementation is facilities and infrastructure as well as support from the learning environment. The availability of learning facilities such as media, technology, and learning resources helps the learning process run more effectively. In addition, integrating technology into learning is an important part of curriculum implementation in the modern era, as it can increase student engagement and improve the quality of learning (Nisa, 2022).

However, curriculum implementation is not free from various challenges. Some common obstacles include limited teacher understanding of the curriculum, lack of training, and limited supporting facilities. In addition, ongoing curriculum changes require adaptation from all parties, both teachers and educational institutions. Therefore, efforts are needed to improve teacher competence and provide continuous policy support so that curriculum implementation can run optimally.

Thus, it can be concluded that curriculum implementation is a complex process involving various educational components. The success of curriculum implementation is strongly influenced by teacher competence, school management, and the availability of facilities and infrastructure. If all these components function well, curriculum implementation

can improve the overall quality of education.

Learning Models in Curriculum Implementation

Learning models are one of the important components in curriculum implementation. A curriculum that has been designed will not run optimally without being supported by the appropriate selection of learning models. Learning models function as a framework or strategy used by teachers in delivering learning materials so that curriculum objectives can be achieved effectively. Therefore, the success of curriculum implementation is greatly influenced by the teacher's ability to select and apply learning models that are appropriate to the characteristics of students (Rusman, 2017).

Problem Based Learning (PBL) Model

Problem Based Learning (PBL) is a learning model that focuses on the process of problem solving and applying concepts in real world situations. Problem Based Learning requires students to be active in thinking critically and skillfully in solving problems. The more active students are in their thinking skills, the greater the opportunity for problems to be solved.

According to Lestari et al. (2023), PBL is based on several main theories:

1) Constructivism: PBL is based on the philosophy of constructivism, which assumes that learning involves students' mental activities in constructing their own knowledge. Constructivism suggests that effective learning occurs when students actively participate in acquiring knowledge and making meaning from their own experiences.
2) Social learning theory: PBL is also based on social learning theory, which emphasizes the importance of social interaction in learning. In PBL, students are able to work collaboratively in groups to solve problems, allowing them to learn from one another.
3) Cognitive theory: Cognitive theory emphasizes the importance of developing understanding through connections between concepts and prior knowledge. PBL helps students build networks that connect concepts and knowledge in real life situations, thereby strengthening their understanding of the subject matter.
4) Social constructivism theory: This theory emphasizes that knowledge is constructed through social interaction and dialogue. PBL enables students to collaborate with peers and instructors in building understanding of knowledge and how it can be applied in everyday life.

Problem-Based Learning (PBL) enables students to engage in an active learning process and develop their own understanding of knowledge through application in everyday life.

The PBL model is a process that engages students in solving problems and applying their knowledge and skills in real-world situations. The Problem-Based Learning (PBL) model has several characteristics, including:

1) Focus on problem solving: PBL focuses on problem solving as the main goal of learning, where students are given responsibility to solve complex problems related to real world situations.

2) Active learning: The PBL model actively involves students in the learning process, encouraging them to take a more active role in searching for, managing, and using relevant resources to find solutions to given problems.
3) Student centered: PBL views students as active and responsible individuals in their own learning, allowing them to monitor and manage their learning process independently.
4) Small group learning: PBL is often conducted in small groups where students collaborate to find solutions to given problems.

Problem Based Learning (PBL) aims to help students develop their ability to solve complex problems related to the real world.

Project-Based Learning (PJBL) Model

Project-Based Learning is a recommended learning model for implementation because it focuses on students. Implementing this learning model allows students to become more active in their learning.

The following are the characteristics of the Project-Based Learning model:

1) Students will determine a process framework for working on the project.
2) Students will be able to solve the given problem.
3) Next, students will determine how to solve the given problem.
4) In groups, students are tasked with managing existing information and knowledge and being able to solve the problem.
5) Assessment is carried out continuously.
6) Students have the opportunity to describe the project they are working on.
7) The resulting product is evaluated qualitatively.
8) The learning environment provides opportunities for students to make modifications so that they become active participants in the learning process. (Lestari et al., 2023)

Kurniasih (2014) explains the advantages of implementing Project-Based Learning, namely:

1) Increase student motivation to learn, fostering their ability to perform important and valued tasks.
2) Improve problem-solving skills and enable students to become more active and successful in solving complex problems.
3) Increase collaboration, encourage students to develop and practice their communication skills.
4) Improve student resource management skills.
5) Provide students with learning and practical experience in organizing projects and allocating time and resources to complete assignments.
6) Provide learning experiences that engage students in a complex way and are designed to evolve with the real world.
7) Engage students in learning to absorb information and demonstrate their knowledge and implement it in their daily lives. Teachers must create a fun learning environment so that students enjoy the learning process. (Nurfitriyanti, 2016)

There are also drawbacks to this learning approach, namely:

1) Many teachers are still unable to guide their students in problem-solving.
2) It requires significant costs and time, or even a significant amount of time.
3) It is difficult for educators to monitor because students' activities take place outside the classroom. (Sidiq & Najuah, 2021)

Discovery Learning Model

Discovery Learning is a learning model that fosters active and creative learning in students, encouraging them to discover, investigate, process, and draw their own conclusions. This is called discovery learning. The results are long-lasting, satisfying, and unforgettable. The goal of this learning model is to develop students' thinking skills, making them more active and creative, and building self-confidence in the learning process.

The Discovery Learning model aims to transform passive learning into active and creative learning. This learning model emphasizes direct experience and the importance of understanding the structure and key ideas of a subject, requiring active student involvement in the learning process. (Dewi et al., 2019)

The steps in this learning process are:

1) Stimulation, which begins the teaching and learning process by asking questions, encouraging reading, and other activities that guide problem-solving preparation.
2) Problem Statement, which provides students with the opportunity to identify as many issues as possible relevant to the learning material, then select one and formulate it in the form of a hypothesis or tentative answer.
3) Data Collection, which provides students with the opportunity to gather as much relevant information as possible to prove whether their hypothesis is correct or not.
4) Data Processing, which manages the data and information obtained by students through interviews, observations, and so on, and then interprets it.
5) Verification, which conducts a careful examination to prove whether the established hypothesis is correct or not, in conjunction with the results of the data processing.
6) Generalization, which draws a conclusion that can be used as a general principle and applies to all similar events, taking into account the verification results. (Tama, 2020)

Inquiry Learning Model

Inquiry Learning prepares students in certain situations to conduct their own experiments, enabling them to think critically and seek and find answers to problems and questions. The benefits of using the Inquiry Learning model in learning include:

1) Encouraging students to think and work independently.
2) Encouraging students to think proactively and formulate their own hypotheses.
3) It can shape and develop each student's self-concept.
4) It enables students to learn by utilizing various learning resources outside of school, rather than relying solely on the teacher as the sole learning resource.

Problem Solving Learning Model

Problem-solving is a teaching approach that presents students with problems as a context for learning critical thinking and problem-solving skills, while also acquiring essential knowledge and concepts from the learning material. The problem-solving model, defined as learning, addresses real-life problems and uses scientific, rational, and systematic methods to solve these problems.

The problem-solving learning model aims to develop thinking skills based on opportunities to observe problems, collect data, analyze data, formulate hypotheses, and identify missing relationships within the collected data, ultimately drawing conclusions about the solution (Isjoni, 2014).

D. CONCLUSION

Curriculum implementation is a crucial process that connects planning with classroom learning. Its success is influenced by the role of teachers, school management, and the support of facilities and infrastructure in creating effective learning.

Furthermore, learning models are a crucial part of curriculum implementation. The use of models such as Problem-Based Learning (PBL), Project-Based Learning (PJBL), Discovery Learning, Inquiry Learning, and Problem-Solving can enhance student engagement and critical thinking skills.

Therefore, effective curriculum implementation supported by appropriate learning models can improve the quality of learning and the overall quality of education.

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