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TRENDS IN THE IMPLEMENTATION OF INSTRUCTIONAL MODELS IN EDUCATIONAL RESEARCH: A SYSTEMATIC LITERATURE REVIEW

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Abstract

The increasing diversity of instructional models has provided educators with broader alternatives for designing learning experiences that accommodate subject characteristics, learning objectives, and students' needs. At the same time, the growing number of available models has made the selection of an appropriate instructional approach increasingly challenging. This study aims to identify, classify, and analyze the development of instructional models implemented in educational research through a Systematic Literature Review (SLR). The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, including the stages of identification, screening, eligibility assessment, and inclusion of studies retrieved from reputable scientific databases based on predefined selection criteria. The selected articles were analyzed using descriptive and thematic approaches to identify the types of instructional models, research trends, and implementation characteristics across different educational levels. The findings indicate that problem-oriented, collaborative, inquiry-based, and project-based instructional models are the most frequently implemented approaches. Furthermore, the selection of instructional models is influenced by learning objectives, subject characteristics, educational level, and the competencies targeted for development. This review concludes that no single instructional model is universally effective for all learning contexts, highlighting the importance of selecting instructional models that align with specific educational conditions to achieve optimal learning outcomes.

Keywords: Instructional Models; Educational Research; Systematic Literature Review; PRISMA; Instructional Approach.

1. Introduction

The rapid advancement of science, technology, and information has transformed the educational paradigm toward more student-centered learning. Twenty-first-century education no longer focuses solely on the acquisition of knowledge but also emphasizes the development of critical thinking, creativity, collaboration, communication, and problem-solving skills required to address increasingly complex global challenges. Consequently, educators are expected to select and implement instructional models that align with subject characteristics, students' needs, and intended learning outcomes (Joyce et al., 2015).

Along with the evolution of learning theories, numerous instructional models have been developed and implemented across various disciplines and educational levels. Models such as Problem-Based Learning (PBL), Project-Based Learning (PjBL), Inquiry-Based Learning, Discovery Learning, STEM, STEAM, and other problem-solving-oriented approaches have become widely adopted alternatives for improving learning quality. Previous studies have demonstrated that these instructional models contribute to the enhancement of critical thinking, creativity, problem-solving skills, learning motivation, and academic achievement (Marini et al., 2026; Arthamena et al., 2025; Sulistyawati, 2025; Ling et al., 2024).

Among these instructional models, Problem-Based Learning (PBL) has received considerable attention because it places students at the center of the learning process through the exploration and resolution of authentic contextual problems. Marini et al. (2026) reported that the implementation of PBL not only improves students' critical thinking skills but also enhances student engagement and supports

educational sustainability through technology integration. These findings are supported by Kurniawan et al. (2026), who developed a GeoGebra-assisted PBL approach to enhance students' mathematical critical thinking skills. In another context, Arthamena et al. (2025) integrated socio-scientific issues into PBL and found that the model effectively improved students' science process skills. Furthermore, PBL has been reported to foster creativity among early childhood learners (Sulistyawati, 2025), improve elementary students' motivation to learn mathematics through the integration of the Wordwall application (Novitasari & Fathoni, 2025), and increase student engagement through the implementation of culturally responsive teaching (Siswanto et al., 2025). Collectively, these studies indicate that PBL is highly adaptable and can be effectively implemented across different educational levels and subject areas.

In addition to PBL, Project-Based Learning (PjBL) has also experienced substantial development in educational research. Unlike PBL, which emphasizes problem investigation and resolution, PjBL focuses on learning through the planning, development, and completion of meaningful projects, enabling students to develop higher-order thinking skills more comprehensively. Şahin and Kılıç (2026) compared the effectiveness of Project-Based 6E Learning and Problem-Based Quantum Learning and identified differences in their instructional effectiveness. Likewise, Rehman et al. (2025) reported that PjBL positively influenced students' attitudes toward mathematics learning. Ling et al. (2024) further demonstrated that interdisciplinary project-based learning contributed to the improvement of middle school students' problem-solving abilities. At the elementary education level, Ndiung and Menggo (2024) found that PjBL significantly enhanced students' creative thinking and mathematical problem-solving skills. These findings suggest that project-based instructional approaches have become an important strategy for promoting meaningful and active learning.

The development of instructional models has also been characterized by the increasing integration of innovative educational approaches, particularly STEM (Science, Technology, Engineering, and Mathematics) and STEAM (Science, Technology, Engineering, Arts, and Mathematics). These interdisciplinary approaches are designed to connect scientific concepts with real-world applications, allowing students to develop twenty-first-century competencies in authentic learning environments. Retno et al. (2025) proposed a conceptual framework for STEM-integrated Project-Based Learning in elementary education, while Susanti et al. (2025) developed STEM-based digital worksheets to enhance students' problem-solving skills. Similarly, Fitriasih et al. (2025) demonstrated that STEAM-IoT-based learning media improved students' problem-solving and collaboration skills. Rizal et al. (2025) also integrated STEAM into PBL and reported significant improvements in students' creativity and science learning outcomes. These findings indicate that the integration of STEM and STEAM has become an increasingly prominent trend in the development of innovative instructional models.

Beyond the development of instructional models themselves, several studies have emphasized the importance of adapting instructional approaches to students' characteristics and specific learning contexts. For instance, Musonif et al. (2026) integrated the theory of multiple intelligences into a problem-solving approach for Fiqh instruction, whereas Utami et al. (2025) combined problem-based learning with multicultural education in reading comprehension instruction. Likewise, Dini and Rini (2024) demonstrated that integrating local potential into science learning contributed to the development of twenty-first-century skills. These findings suggest that the effectiveness of an instructional model depends not only on the model itself but also on learners' characteristics, subject content, learning environments, and complementary instructional innovations.

Although research on instructional model implementation has expanded considerably, most previous studies have primarily focused on evaluating the effectiveness of a single instructional model in improving specific learning outcomes. These studies have been conducted across different subjects, educational levels, and learning contexts, resulting in fragmented evidence regarding the overall development and implementation of instructional models. Consequently, there remains a lack of comprehensive understanding regarding the trends, characteristics, and educational contexts of instructional model implementation, as well as the competencies most frequently targeted in educational research. This situation highlights the need for a systematic synthesis of existing evidence to provide a broader perspective on the development of instructional models.

One appropriate approach for synthesizing such evidence is the Systematic Literature Review (SLR). Unlike traditional narrative reviews, an SLR follows a systematic, transparent, and reproducible methodology, enabling researchers to produce a more objective and comprehensive synthesis of empirical evidence. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework has become one of the most widely accepted guidelines for conducting and reporting systematic reviews, providing structured procedures for study identification, screening, eligibility assessment, and inclusion (Page et al., 2021). Through this approach, previous studies on

instructional models can be systematically mapped according to instructional characteristics, publication trends, educational levels, subject domains, and targeted competencies.

Based on the foregoing discussion, this study aims to identify, classify, and analyze the development of instructional models implemented in educational research through a Systematic Literature Review (SLR) following the PRISMA guidelines. The findings are expected to provide a comprehensive overview of research trends in instructional model implementation and serve as a valuable reference for researchers, educators, and policymakers in selecting instructional models that best align with specific educational contexts, learning objectives, and students' needs.

Research Question

RQ1. How have publication trends in instructional model research evolved during the period 2020–2026?

RQ2. Which instructional models have been most frequently implemented in educational research during the period 2020–2026?

RQ3. At which educational levels have instructional models been most frequently implemented during the period 2020–2026?

RQ4. How are studies on instructional model implementation geographically distributed across continents during the period 2020–2026?

2. Research Methods

This study employed the **Systematic Literature Review (SLR)** method to identify, analyze, and synthesize empirical findings on the implementation of various instructional models in educational research. Specifically, the review aimed to examine publication trends, implementation characteristics, educational levels, and the geographical distribution of studies. The review was conducted following the **Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)** guidelines to ensure that the processes of study identification, screening, eligibility assessment, and inclusion were systematic, transparent, and reproducible (Page et al., 2021).

The literature search was conducted using **Google Scholar** with the following search keywords: **"Problem-Based Learning" OR "Project-Based Learning" OR "Inquiry-Based Learning" OR "Collaborative Learning" OR "Discovery Learning" OR "Creative Problem Solving" OR "Search, Solve, Create, and Share (SSCS)" OR "STEM Learning" OR "Game-Based Learning."** The search was limited to articles published between **2020 and 2026** to ensure that the synthesized findings reflected recent developments in the implementation of instructional models in educational research.

The initial search identified **993 articles**. These articles were subsequently screened according to predefined inclusion and exclusion criteria. The selection process involved removing duplicate records, screening titles and abstracts, assessing the eligibility of full-text articles, and finally including studies that satisfied all selection criteria for the final review in accordance with the PRISMA framework.

A systematic screening process was employed to ensure that only studies relevant to the objectives of this review were included in the final analysis. The inclusion and exclusion criteria used for study selection are presented below:

Table 1. Inclusion and Exclusion Criteria

Criteria	Inclusion	Exclusion	Excluded Articles
Topic	Studies discussing the implementation of instructional models in educational research.	Studies unrelated to the implementation of instructional models in educational research.	210
Educational Level	Early Childhood Education (ECE), Elementary School, Junior High School, and Senior High School.	Higher Education and other educational levels not specified in the inclusion criteria.	288

Study Type	Empirical, theoretical, or philosophical journal articles.	Systematic literature reviews, narrative literature reviews, opinion papers, conference abstracts, book chapters, and non-journal publications.	212
Publicatio Year	Published between 2020 and 2026.	Published before 2020.	-
Duplicates	-	Duplicate records.	1
Total Excluded			711

Table 1 presents the article selection process based on the predefined inclusion and exclusion criteria. The articles identified through the Google Scholar database were screened systematically to ensure that only studies relevant to the objectives of this review were included in the final analysis.

The selected studies were required to focus on the **implementation of instructional models in educational research**. Articles that discussed educational issues in general without explicitly examining the implementation of instructional models were excluded from the review. A total of **711 articles** were excluded because they did not meet the topic-specific inclusion criteria.

The review was limited to studies conducted at the **Early Childhood Education (ECE), Elementary School, Junior High School, and Senior High School** levels. Studies involving participants outside these educational levels, such as higher education students, were excluded. Consequently, **288 articles** were removed because their educational level did not meet the predefined criteria.

Only peer-reviewed journal articles reporting **empirical studies (quantitative, qualitative, or mixed-methods), theoretical studies, or philosophical discussions** were considered eligible. Review articles, opinion papers, non-academic essays, books, conference papers, undergraduate theses, master's theses, dissertations, and activity reports that had not undergone a peer-review process were excluded. Based on these criteria, **212 articles** were removed from the review.

To maintain the validity and efficiency of the review process, duplicate records identified across the databases were removed. In total, **one duplicate article** was identified and deleted, leaving only a single version for further screening.

After applying all inclusion and exclusion criteria, **282 articles** met the eligibility requirements and were subjected to a quality assessment. The quality of each article was evaluated using a rubric consisting of seven criteria adapted from Mullet (2016): (I) Purpose and Objectives, (II) Literature Review, (III) Theoretical Framework, (IV) Participants, (V) Methodology, (VI) Results and Conclusions, and (VII) Significance. These criteria were used to determine whether each article met acceptable standards of research reporting.

Each criterion was assessed using a four-point rating scale: **(1) Does Not Meet the Standard, (2) Approaches the Standard, (3) Meets the Standard, and (4) Exceeds the Standard**. Consequently, the maximum possible quality score for an article was **28 points**, while the minimum possible score was **7 points**. Articles receiving a total score of **less than 15 points** were excluded from the final analysis because they did not satisfy the minimum quality threshold established for this review.

Following the quality assessment based on the seven evaluation criteria, all selected articles achieved a score of **15 or higher**, indicating that they met the minimum quality threshold and were therefore considered eligible for further analysis. The highest quality score obtained was **28 points**, while the lowest score was **21 points**. These results indicate that all included studies demonstrated satisfactory methodological and reporting quality.

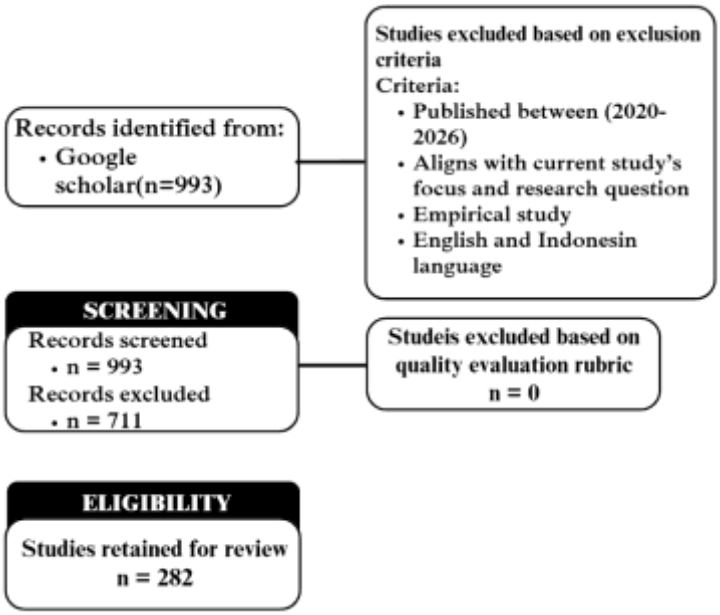

Figure 1. Inclusion and Exclusion

3. Results and Discussion

The Figure 2 illustrates the publication trends of studies implementing various instructional models in educational research during the period **2020–2026**. Overall, **Problem-Based Learning (PBL)** emerged as the most frequently implemented instructional model throughout the study period, indicating its dominant position in contemporary educational research.

In **2020**, the number of publications related to PBL was relatively high, with approximately **63 studies**. Although the number slightly decreased to **58 studies** in **2021**, it increased again to around **62 studies** in **2022**, demonstrating that PBL remained the primary focus of educational research during this period. However, beginning in **2023**, the number of publications declined considerably to approximately **50 studies**, followed by a continuous decrease to **34 studies** in **2024**, **10 studies** in **2025**, and only about **5 studies** in **2026**. This downward trend may be attributed to the fact that the literature search was conducted before the end of 2026, meaning that publications for that year were not yet fully indexed.

The second most frequently implemented instructional model was **Project-Based Learning (PjBL)**. The number of publications remained relatively stable in **2020** and **2021**, with approximately **32 studies** each year, before increasing substantially to about **47 studies** in **2022**. After reaching this peak, the number of publications gradually declined to approximately **27 studies** in **2023**, **16 studies** in **2024**, **6 studies** in **2025**, and around **4 studies** in **2026**. This pattern indicates that interest in PjBL grew considerably during the early years of the review period before declining in subsequent years.

The **STEM/STEAM** approach demonstrated a relatively stable but modest publication trend. The number of studies generally ranged between **4 and 7 publications per year**, with the highest numbers recorded during **2020–2022**, followed by a gradual decline after **2023**. Although the publication volume was considerably lower than that of PBL and PjBL, STEM/STEAM remained one of the most consistently investigated innovative instructional approaches.

The remaining instructional models, including **Inquiry-Based Learning, Discovery Learning, Creative Problem Solving (CPS), Search, Solve, Create, and Share (SSCS), Problem Solving, Problem Posing, Collaborative Learning (COPS), Blended Learning, Design-Based Learning,** and **Integrated Learning**, appeared only in a limited number of publications, generally fewer than five studies per year. This finding indicates that educational research during the review period was heavily concentrated on PBL and PjBL, while other instructional models received comparatively less attention.

Overall, the findings demonstrate that **Problem-Based Learning (PBL)** was the most widely implemented instructional model in educational research between **2020 and 2026**, followed by **Project-Based Learning (PjBL)**. The dominance of these two instructional models suggests that problem-oriented and project-oriented learning approaches continue to be the primary focus of educational innovation. Meanwhile, the relatively small number of studies on other instructional models highlights opportunities for future research to explore a broader range of instructional approaches across diverse educational contexts.

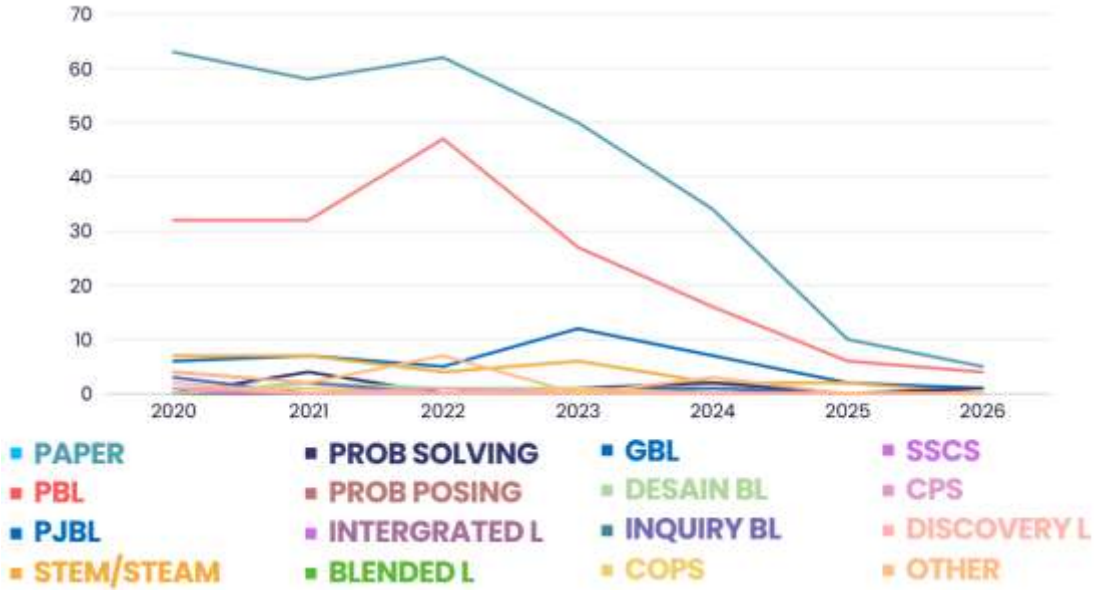

Figure 2. Publication Tren

Figure 3 presents the distribution of studies implementing instructional models across different educational levels during the period **2020–2026**. The educational levels included in this review were **Early Childhood Education (Playgroup), Elementary School, Junior High School, and Senior High School**. Overall, **Senior High School** and **Junior High School** accounted for the largest proportion of studies, whereas relatively few studies were conducted at the **Playgroup** level.

During **2020**, instructional model research was predominantly conducted at the **Senior High School** level, with approximately **35 studies**, followed by **Junior High School** with **20 studies**, **Elementary School** with **7 studies**, and only **one study** at the Playgroup level. A similar pattern was observed in **2021**, although the number of studies at the Senior High School level decreased to approximately **25**, while Junior High School research increased slightly to around **23 studies**. In **2022**, the focus of educational research shifted toward the **Junior High School** level, which recorded the highest number of publications (**approximately 27 studies**), surpassing Senior High School (**24 studies**). Elementary School research also reached its highest level during this period, with approximately **11 studies**, whereas no studies were identified at the Playgroup level. From **2023** onward, the overall number of publications gradually declined across all educational levels. Nevertheless, **Senior High School** and **Junior High School** remained the dominant educational settings. In **2023**, approximately **21 studies** were conducted at the Senior High School level and **18 studies** at the Junior High School level, while Elementary School contributed around **11 studies**. By **2024**, the number of studies further decreased to approximately **15**, **10**, and **9** studies for Senior High School, Junior High School, and Elementary School, respectively.

A substantial decline was observed in **2025** and **2026**, with only a few studies identified across all educational levels. This decrease is likely associated with the incomplete indexing of publications during the most recent years included in the review.

Overall, the findings indicate that instructional model research during the **2020–2026** period was concentrated primarily at the **secondary education level**, particularly in **Senior High School** and **Junior High School**. In contrast, comparatively fewer studies were conducted at the **Elementary School** level, while research involving **Early Childhood Education (Playgroup)** remained very limited. This distribution suggests that researchers have shown greater interest in investigating instructional models among older students, who are generally expected to engage in more complex learning activities requiring higher-order thinking, collaboration, inquiry, and problem-solving. Consequently, the relatively limited number of studies conducted in early childhood and elementary education highlights an opportunity for future research to explore the implementation and effectiveness of innovative instructional models in these educational contexts.

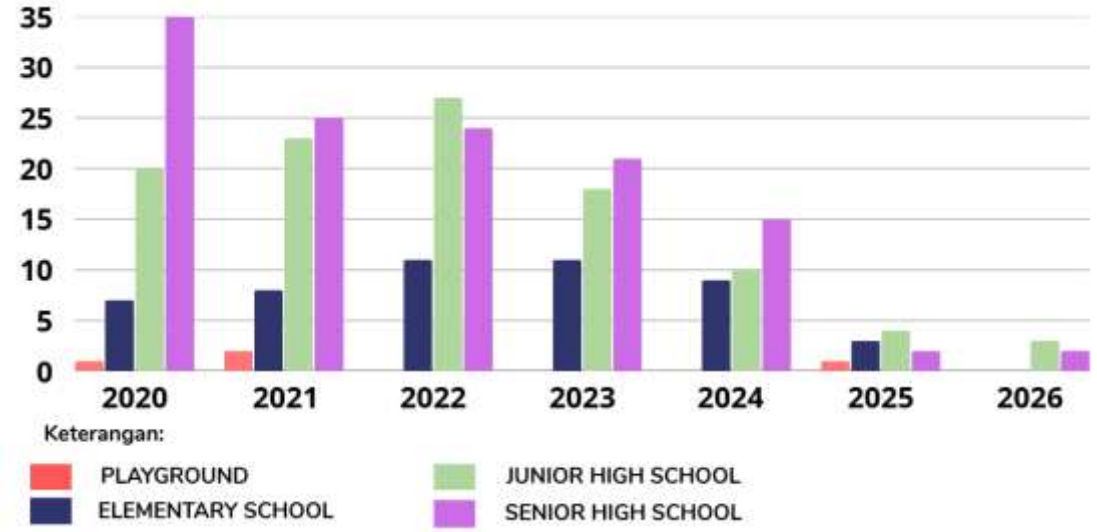

Figure 3. Educational Level

Figure X illustrates the geographical distribution of studies on the implementation of instructional models across different continents. The findings reveal that **Asia** contributed the largest number of publications, with **244 studies**, accounting for the vast majority of the articles included in this review. This finding indicates that research on instructional model implementation has been particularly active in Asian countries, reflecting the region's growing emphasis on educational innovation and student-centered learning.

The second-largest contribution came from **Africa**, with **13 studies**, followed closely by **Europe**, which accounted for **12 studies**. Although considerably lower than the number of studies conducted in Asia, these findings demonstrate that research on instructional models has also attracted increasing attention in these regions.

North America ranked fourth, contributing **9 studies**, while **Australia** accounted for **3 studies**. In contrast, **South America** was represented by only **one study**, making it the least represented continent in this review. No eligible studies originating from **Greenland** were identified during the literature search.

Overall, the findings demonstrate a substantial geographical imbalance in the implementation of instructional model research. The overwhelming dominance of studies conducted in Asia suggests that educational researchers in this region have shown a stronger interest in developing and evaluating innovative instructional models compared with other continents. This trend may be associated with ongoing educational reforms, increasing investment in educational research, and the widespread adoption of student-centered pedagogical approaches across many Asian countries.

Conversely, the relatively small number of studies identified in Africa, Europe, North America, Australia, and South America indicates that further research is needed to broaden the geographical representation of instructional model implementation. Expanding research across diverse educational systems and cultural contexts would provide a more comprehensive understanding of the effectiveness and applicability of instructional models worldwide.

Figure 4. Geographical Distribution of Studies

4. Conclusion

This study employed a **Systematic Literature Review (SLR)** following the **PRISMA** guidelines to identify and analyze trends in the implementation of instructional models in educational research published between **2020 and 2026**. A total of **282 articles** met the predefined inclusion criteria and were included in the final analysis.

The findings indicate that **Problem-Based Learning (PBL)** and **Project-Based Learning (PjBL)** are the most frequently implemented instructional models during the review period, reflecting a strong emphasis on learner-centered and problem-oriented pedagogies. Other instructional models, including Inquiry-Based Learning, STEM/STEAM, Discovery Learning, Game-Based Learning, Collaborative Learning, and Creative Problem Solving, were implemented less frequently but demonstrated increasing diversity in instructional practices across educational contexts.

In terms of educational level, most studies were conducted in **Senior High School** and **Junior High School**, whereas comparatively fewer studies focused on **Elementary School** and **Early Childhood Education**. Geographically, the findings reveal that **Asia** dominates research on instructional model implementation, while considerably fewer studies were identified from Africa, Europe, North America, Australia, and South America. These results indicate an uneven geographical distribution of educational research and suggest that greater international representation is needed to provide a more comprehensive understanding of instructional model implementation across different educational systems.

Overall, this review demonstrates that no single instructional model is universally applicable to all educational contexts. The effectiveness of an instructional model depends on multiple factors, including learning objectives, subject characteristics, students' developmental levels, and the educational environment. Therefore, educators should carefully select instructional models that align with these contextual factors to maximize learning outcomes.

This study contributes to the literature by providing a comprehensive overview of publication trends, instructional model implementation, educational levels, and geographical distribution in educational research. Nevertheless, this review has several limitations. The literature search was limited to **Google Scholar**, and only studies published between **2020 and 2026** were included. Future systematic reviews are encouraged to incorporate additional databases, extend the publication period, and perform more detailed analyses based on subject areas, research methodologies, learning outcomes, or regional characteristics to obtain a broader understanding of instructional model implementation worldwide.

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