

## Differentiated learning is a way to enhance students' reading skills

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### Abstract

Differentiated learning is known as a series of classroom practices that facilitate differences and needs of students such as (interests, prior knowledge of students, socialization needs of students and comfort zones of learning of students). The purpose of this study is to expand the application of learning in improving students' reading skills. This study uses the Systematic Literature Review (SLR) method to analyze and analyze literature related to the effectiveness of differentiated learning in improving students' reading skills. 13 articles Q1-Q4 became the final for analysis sourced from direct science scopus. The results of the analysis of various articles showed that learning consistently improved reading comprehension, comprehension knowledge, and student engagement. Key success factors include understanding student needs, teacher desires, and effective use of assessment data. Key components include adaptation of learning content, processes, and products, and ongoing assessment. This approach is effective for various groups of students, including multilingual learners. Implications of the study include the need for teacher professional development, appropriate resource allocation, and adjustment of teacher education curriculum to implement differentiated learning.

**Keywords:** *Differentiated learning, Systematic Literature Review, Reading skill*

### Abstrak

Pembelajaran diferensiasi dikenal sebagai serangkaian praktik kelas yang memfasilitasi perbedaan dan kebutuhan siswa, misalnya (minat, pengetahuan awal siswa, kebutuhan sosialisasi siswa, dan zona nyaman belajar siswa). Tujuan dari penelitian ini adalah untuk mengevaluasi penerapan pembelajaran diferensiasi dalam meningkatkan keterampilan membaca siswa. Penelitian ini menggunakan metode Tinjauan Literatur Sistematis (SLR) untuk meninjau dan menganalisis literatur yang terkait dengan efektivitas pembelajaran diferensiasi dalam meningkatkan keterampilan membaca siswa. 13 artikel Q1-Q4 bersifat final untuk analisis yang bersumber dari science direct scopus. Hasil analisis berbagai artikel menunjukkan bahwa pembelajaran diferensiasi secara konsisten meningkatkan pemahaman membaca, pengetahuan kosakata, dan keterlibatan siswa. Faktor-faktor kunci keberhasilan meliputi pemahaman kebutuhan siswa, fleksibilitas guru, dan penggunaan data penilaian yang efektif. Komponen utama meliputi adaptasi konten, proses, dan produk pembelajaran, serta penilaian berkelanjutan. Pendekatan ini terbukti efektif untuk berbagai kelompok siswa, termasuk pembelajar multibahasa. Implikasi dari penelitian ini meliputi perlunya pengembangan profesional guru, alokasi sumber daya yang tepat, dan penyesuaian kurikulum pendidikan guru untuk menerapkan pembelajaran diferensiasi.

**Kata Kunci:** Pembelajaran terdiferensiasi, Tinjauan pustaka sistematis, keterampilan membaca



## INTRODUCTION

Reading skills are one of the essential aspects in students' education and cognitive development. However, students' reading skills are not all the same as expected. A 2018 Programme for International Student Assessment (PISA) survey showed that 77% of students from 79 countries only achieved reading proficiency level 2, where students were only able to identify key themes in relatively long texts (Potot et al., 2023). Even more worrying, for example; in the Philippines ranked lowest in reading proficiency among the 79 countries surveyed, with one in four students unable to complete the most basic reading tasks (Potot et al., 2023). This condition indicates that there is a significant gap in students' reading skills globally.

In addition, the same problem is still encountered in ASEAN countries, for example in the Bicol region, Philippines, where it was found that 70,000 public elementary school students were classified as non-readers based on the results of the pre-test using the Philippine Informal Reading Inventory (Phil-IRI) (Idulog et al., 2023; Potot et al., 2023). According to the Secretary of the Ministry of Education Leonor Briones, the main problem in Bicol is not literacy, but reading comprehension. According to the Secretary of the Ministry of Education Leonor Briones, the main problem in Bicol is not literacy, but reading comprehension. This concerning situation highlights the urgent need for targeted interventions and improved teaching strategies to address the reading comprehension challenges faced by students in the region.

One of the ways to improve reading skills that occurs in ASEAN is the need for a learning strategy that facilitates the diversity of each student's needs in learning. The learning strategy that the researcher introduced is differentiated instruction learning. Differentiation learning is known as a series of classroom practices that facilitate students' differences and needs, for example (students' interests, initial knowledge, students' socialization needs and students' learning comfort zones) (Potot et al., 2023; Wardani & Darmawan, 2024). This approach allows teachers to tailor learning content, processes, and products according to each student's readiness and learning profile. Research shows that differentiated learning increases student enthusiasm and participation, leading to improved learning outcomes (Aminuriyah et al., 2023).

Differentiated learning is based on some strong learning theories for example; Vygotsky's Zones of Progressive Development (ZPD), which emphasizes the importance of adapting learning to students' actual and potential developmental levels (Shabani et al., 2010). Jerome Bruner's Constructivist Theory also supports this approach, emphasizing the active role of students in building their own knowledge (Bruner, 2002). In addition, Deci and Ryan's Theory of Self-Determination points out the importance of meeting students' basic psychological needs to increase their intrinsic motivation to learn ((Ryan & Deci, 2000)

For example, a study by McCullough (2011) showed a significant improvement in vocabulary and reading comprehension of second-grade students who experienced learning difficulties after applying learning differentiation (Potot et al., 2023). Other research by (Smale-Jacobse et al., 2019) explained that differentiated learning had a small to moderate positive impact on student achievement, with the impact size ranging from  $d = +0.741$  to  $+0.509$ . It is also corroborated by several other studies from (Gobiberia, 2021) revealed that differentiated learning increases motivation, involvement in the classroom, achievement of knowledge, and skills based on individual abilities. While these studies demonstrate the effectiveness of differentiated learning in various contexts, there remains a significant gap in understanding how these practices can be systematically implemented across different educational settings and student populations. Additionally, most existing research focuses on individual case studies or specific contexts, leaving a need for comprehensive analysis that synthesizes findings across multiple studies to establish best practices and implementation guidelines for differentiated learning in improving reading skills.

Researchers want to further analyze and review the effectiveness of learning differentiation in various educational contexts. Some studies show results that vary depending on the grade level, student background, and implementation method. Therefore, a systematic review is needed to integrate and synthesize the findings from various studies on the impact of learning differentiation on students' reading skills. Systematic Literature Review (SLR) allows analysis in several keywords based on carefully developed research questions.

The purpose of this study is to evaluate the application of learning differentiation in improving students' reading skills. To achieve this purpose, the study seeks to address three fundamental research questions. First, this study aims to examine how effective learning differentiation is in improving students' reading skills across various educational contexts. Second, it investigates the factors that affect the successful implementation of learning differentiation in improving students' reading skills, considering both enablers and barriers to implementation. Third, this research explores the key components in differentiated learning, aiming to identify and analyze the essential elements that contribute to its successful application in reading instruction. Through addressing these questions, this study intends to provide a comprehensive understanding of differentiated learning's role in enhancing reading skills development.

### **METHOD**

This study uses the Systematic Literature Review (SLR) method to review and analyze literature related to the effectiveness of differentiated learning in improving students' reading skills. The SLR protocol refers to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure a systematic and comprehensive review of (Moher et al., 2009; Page et al., 2021).

Article selection criteria include inclusion criteria: (1) Publication in Scopus Q1-Q4 indexed journals; (2) Study on the implementation of differentiated learning in reading teaching; (3) Research that presents results, evaluation methods, or impacts on the use of differentiated learning; (4) Articles in English; (5) Published in 2020-2024 (considering the topic so that the latest is still valid). Exclusion criteria include: (1) Non-primary research review articles; (2) Conference proceedings; (3) Articles are not accessible/paid; (4) Articles outside the field of education and educational psychology.

Literature searches are carried out through the Scopus database by considering its reputation as a highly reputable source in the field of education. Search keywords include "differentiated instruction in reading", "individualized reading instruction", and "effectiveness of differentiated learning in reading skills". The selection process and reference management use Mendeley software.

The data analysis technique in SLR adopts a thematic-based narrative synthesis approach. Every article that passes the final selection will be read thoroughly. The analysis process begins with an in-depth reading of each article to understand its context, methodology, and key findings. Furthermore, the relevant information of each article is coded according to the predetermined research questions, covering aspects such as differentiation methods, impact on reading skills, factors affecting effectiveness, and implementation challenges.

The coding that emerges from the various articles is then grouped into broader themes that align with the research question. These themes are organized into a coherent and comprehensive narrative, answering each research question with the support of evidence from the analyzed articles. Finally, based on this narrative synthesis, a general conclusion is drawn regarding the effectiveness of differentiated learning in improving students' reading skills.

Through this analysis process, the study aims to present a comprehensive and structured picture of the use and effectiveness of differentiated learning in improving

students' reading skills, based on empirical evidence from the existing literature. The following is presented the process of filtering existing articles using PRISMA.

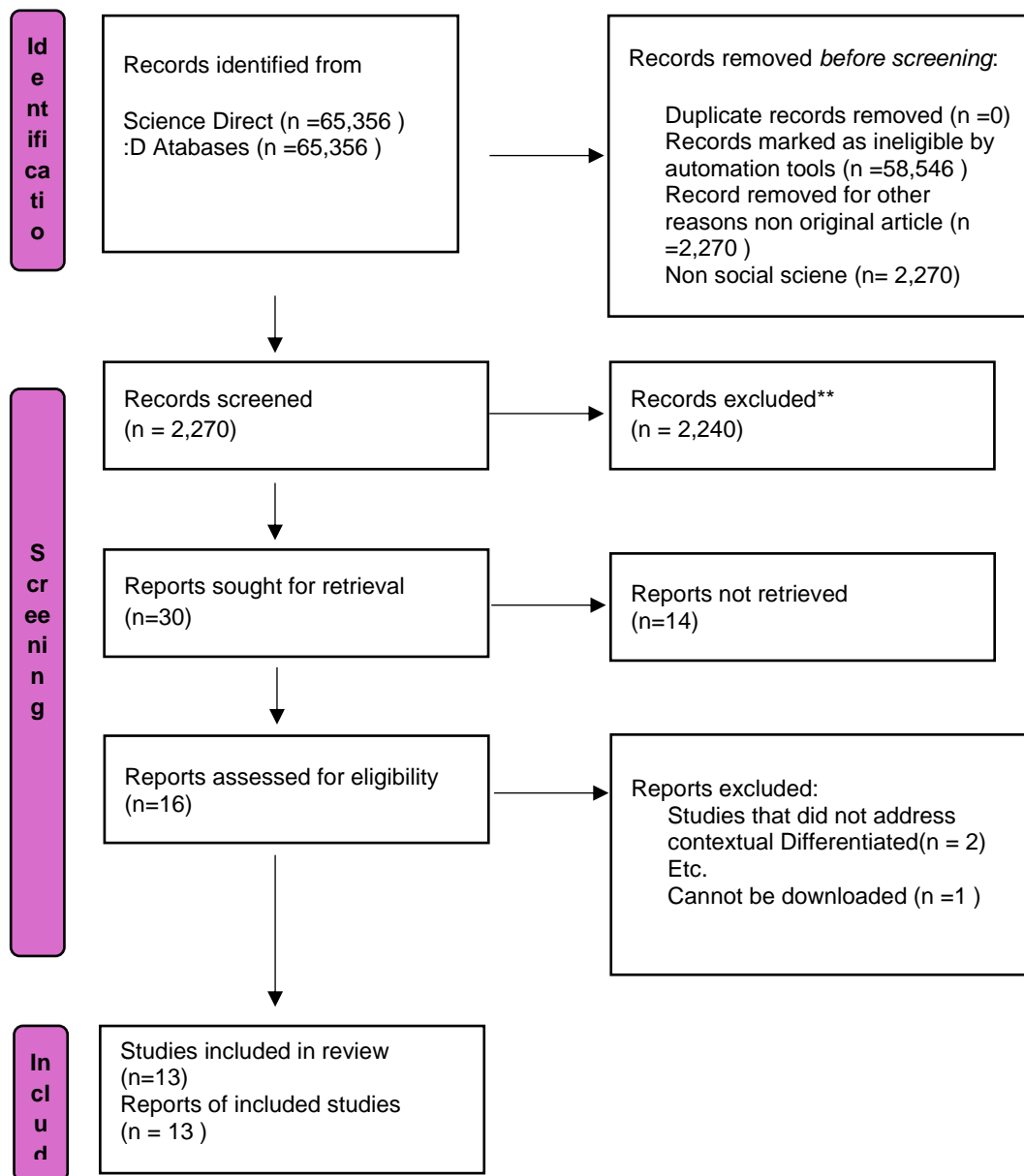


Figure 1. PRISMA Differentiated Research Flow Chart

After the article has been finalized, the researcher seeks to identify the first step to select the article about the characteristics of the article. The characteristics of the article are explained as follows:

**Sample Size and Characteristics:**

The studies analyzed showed significant variations in sample size and participant characteristics. (Karst et al., 2022). conducted a large-scale study with 1,829 fifth-grade students, including 656 students in the intervention group. (Iterbeke et al., 2020). It involved a total of 2,407 students from 65 schools in two randomized controlled trials. (Amorim et al., 2022). It examined 749 four-year-old preschool students. On the other hand, (Paleczek et al., 2022). Focus on a smaller sample with 14 children in an individual

setting and three diverse classes. For studies involving teachers, (van Geel et al., 2022) Examining 288 primary school teachers, while (Wang et al., 2023) observed 73 teachers from 18 primary schools in Germany.

### **Research Methodology:**

A variety of research methods were used in these studies. Some researchers apply experimental designs, such as randomized controlled trials conducted by (Amorim et al., 2022; Iterbeke et al., 2020) Use Propensity Score Matching to compare classes. The mixed-methods approach is also commonly used, as reported by (Paleczek et al., 2022) which combines think-alouds, interviews, and screencasts. (Condie & Pomerantz, 2020) Observing literacy lessons, while (Naparana & Alinsug, 2021) Focus on teacher experience in multigrade teaching.

### **Research Topics and Focus:**

These studies cover different aspects of differentiated learning. (Amorim et al., 2022; Paleczek et al., 2022). focus on the development and evaluation of digital materials for early literacy. (Naparana & Alinsug, 2021) Researching multigrade teaching strategies in rural schools. (van Geel et al., 2022) explore the factors that affect the implementation of differentiated instructions. (Wayman & Jimerson, 2014) Evaluating innovations in differentiated reading instruction. (Condie & Pomerantz, 2020) observed literacy opportunities in primary education examined the effectiveness of differentiated learning interventions on a larger scale.

This grouping demonstrates the diversity and depth of research on differentiated learning, spanning a wide range of contexts, methodologies, and focuses, providing a comprehensive understanding of its implementation and effectiveness at different levels of education.

## **RESULTS AND DISCUSSION**

### **Result**

Analysis of the reviewed literature reveals several significant themes and patterns in differentiated learning research. The effectiveness of differentiated learning emerges as a primary theme across multiple studies. Research by (Karst et al., 2022; Paleczek et al., 2022) demonstrates consistent improvements in reading comprehension when implementing differentiated instruction strategies. These findings are further strengthened by (Amorim et al., 2022) research, which shows enhanced student engagement and achievement through game-based interventions and learning analytics.

Implementation factors form another crucial theme in the literature. (van Geel et al., 2022) emphasize the importance of comprehensive teacher preparation and professional development in successful differentiated instruction. Their study of 288 teachers reveals that effective implementation requires not only proper training but also systematic support structures. (Wang et al., 2023) complement these findings by highlighting the role of technology integration and the importance of tailoring instruction to different achievement levels.

The research also identifies essential components for successful differentiated learning. (Iterbeke et al., 2020) large-scale randomized control trial with 2,407 participants demonstrates the effectiveness of level-specific materials and strategic use of hints and cues. (Naparana & Alinsug, 2021) contribute valuable insights about the importance of flexible teaching approaches and self-paced learning opportunities. Their case study findings align with (Wrigley et al., 2021) research on multilingual education, which emphasizes the need for inclusive environments and adapted content.

Synthesizing these findings reveals several key conclusions. First, differentiated learning consistently shows positive outcomes across various educational contexts, particularly in reading skill development. The evidence suggests that success depends

heavily on systematic implementation with appropriate support structures and resources. Essential elements include regular assessment, flexible grouping strategies, and diverse instructional methods. Future research directions should focus on examining long-term sustainability of differentiated learning programs and their scalability across different educational contexts.

Looking ahead, the literature suggests several important considerations for educational practice. Professional development emerges as a critical factor, with multiple studies emphasizing the need for ongoing teacher training and support. Technology integration, while beneficial, requires careful planning and appropriate infrastructure. Additionally, the research highlights the importance of regular assessment and monitoring systems to ensure effective implementation of differentiated instruction strategies.

The compiled evidence strongly supports the implementation of differentiated learning while highlighting important considerations for successful application in educational settings. This comprehensive analysis provides educators and researchers with a clear framework for understanding both the benefits and requirements

### **The effectiveness of learning differentiation in improving students' reading skills**

The effectiveness of learning differentiation in improving students' reading skills has been proven through various studies. (Paleczek et al., 2022) found that adapting reading materials to students' individual ability levels can improve vocabulary knowledge and reading comprehension. This is in line with the findings (Naparan & Alinsug, 2021) which shows that differentiated instruction allows students to work at their own pace, increasing comprehension and engagement in the reading process.

Research from (Karst et al., 2022) It further outlines how differentiation allows teachers to maximize the learning potential of all students by adjusting the complexity of the content based on their prior knowledge. They also emphasized the importance of reading strategy training to improve cognitive skills necessary in comprehension. (Amorim et al., 2022). adding that differentiated learning targeted at students' specific needs can result in significant improvements in basic reading skills.

Further strengthened by (Wang et al., 2023). observed that teachers who applied differentiation tended to assign more intellectually challenging tasks to students with higher reading abilities, while providing additional support for students in need. (Potot et al., 2023) reported a higher increase in posttest scores in students who received differentiated instruction in reading, demonstrating its effectiveness in improving reading skills. (Wang et al., 2023). affirming that differentiated methods can improve reading accuracy and speed through targeted activities and focused exercises. Meanwhile, research from (Wrigley et al., 2021) noted that the grouping of abilities in several aspects of reading learning can have a positive impact, especially for multilingual learners.

Thus it can be synthesized, that these studies show that learning differentiation, when applied carefully, can significantly improve various aspects of students' reading skills, including vocabulary, comprehension, speed, and accuracy. This effectiveness is seen in improved test scores, higher student engagement, and teachers' ability to meet the diverse needs of students in reading classes.

### **What factors affect the success of the implementation of differentiation**

Based on the reviewed article, the success of the implementation of learning differentiation depends on a variety of interrelated factors. An in-depth understanding of the individual needs of students is the main foundation, as emphasized by (Paleczek et al., 2022) which highlights the importance of adapting texts according to learners' abilities. (Naparan & Alinsug, 2021) Reinforcing this argument by emphasizing teachers' flexibility in implementing varied instructional strategies, supported by effective classroom management.

Research from (Karst et al., 2022). correlate the success of differentiation with teachers' knowledge of student readiness levels and the use of high-quality assessment data. This is in line with the findings (Wang et al., 2023). which emphasizes the importance of teachers' awareness of the level of early achievement of students and mastery of effective literacy teaching approaches. Researchers (Potot et al., 2023) It further underlines the importance of adapting instructional content to meet the diversity of learners' needs. Also corroborated by (van Geel et al., 2022) Identify experience and adequate time allocation as crucial factors, while emphasizing the role of community practice in schools in supporting the development of differentiation skills. (Ehlert et al., 2022) adding the dimensions of teachers' attitudes and perceptions, showing that the alignment between teachers' initial attitudes and the innovations implemented affects the success of implementation.

Then the research from (Griful-Freixenet et al., 2021)Expanding the discussion by highlighting the importance of continuous assessment practices, teacher self-efficacy, and a growth mindset in increasing the effectiveness of differentiation. Meanwhile, (Iterbeke et al., 2020) emphasizing teachers' ability to adapt to classroom dynamics as a determining factor for learning outcomes. Besides that, from (Wrigley et al., 2021) provide a broader perspective by suggesting limited and inclusive implementation, emphasizing access to quality learning and a rich curriculum, as well as the importance of ongoing linguistic support for multilingual learners. Proper technology integration, alignment with curriculum standards, and a proactive approach to differentiation complement the critical factors in successful implementation.

Finally, it can be synthesized that effective implementation of differentiation requires a holistic approach that combines a deep understanding of student needs, flexibility of teaching strategies, careful use of assessment data, school community support, and ongoing professional development for teachers. By paying attention to and integrating these factors, educators can increase the chances of success in implementing differentiated learning, thereby maximizing the learning potential of each student.

### **Key components in differentiated learning**

Differentiated learning has several key interrelated components, forming a holistic approach to meeting the diverse needs of students. Research from (Palczek et al., 2022) emphasizing the importance of adapting texts and reading materials according to the level of individual ability of students, as well as the use of cooperative learning elements. This is in line with the opinion of Karst et al. who highlighted the need for differentiation to address student heterogeneity in readiness, interests, and learning profiles.

Researcher from (van Geel et al., 2022) underlining the importance of teacher response to students' specific needs and readiness, with strategies that include changes in learning speed, goals, and tasks. (Condie & Pomerantz, 2020) It also expands this concept by emphasizing the importance of understanding students' strengths and needs in different domains, as well as adapting learning environments, materials, and methods to individual situations.

Then it was strengthened by (Amorim et al., 2022) Introducing the use of learning analytics and game-based interventions to improve engagement and learning outcomes. This complements Wang et al.'s approach which emphasizes tailoring lessons based on students' current expertise and the provision of varied instructional practices for different levels of achievement. Research from (Wrigley et al., 2021). highlighting the benefits of differentiated instruction in particular for multilingual immigrant learners, with an emphasis on inclusive learning environments and tailored content. (Iterbeke et al., 2020)adds a practical dimension by describing the use of three versions of the material

for different levels of ability, including additional hints and cues for students with intermediate and low abilities.

The assessment and feedback components are also very important, as emphasized by (Wayman & Jimerson, 2014) which highlights the importance of student performance assessment and discussion of improvement strategies. (Kantar et al., 2020) reinforce this by emphasizing progress monitoring through feedback and self-evaluation. By demicin, it can be instilled that differentiated learning involves assessing student needs, adapting content and teaching methodologies, using various supports that are arranged in stages, effective grouping, and continuous monitoring of progress. This approach allows students to work at their own pace, offers appropriate intellectual challenges, and encourages critical thinking and independent learning opportunities. By integrating these components, differentiated learning aims to maximize the learning potential of each student, creating an inclusive and responsive environment to the diversity of learners' needs.

### **Discussion**

The purpose of this study is to evaluate the application of learning differentiation in improving students' reading skills. Based on the results of the overall review, it was concluded that differentiated learning is indeed a modern way to improve students' reading skills based on individual needs. The effectiveness of differentiated learning to improve reading skills has been proven from the results of reviews that have been reviewed and correlated by several studies. Researcher from (Naparan & Alinsug, 2021; Paleczek et al., 2022) for example; found that adapting reading materials to students' individual abilities can improve vocabulary knowledge, comprehension, and engagement in the reading process. (Amorim et al., 2022; Karst et al., 2022) It also supports these findings, showing significant improvements in basic reading skills when learning is tailored to students' specific needs.

Differentiated learning offers a flexible approach to students. Components include adaptation of learning content, processes, and products, as well as continuous assessment, allowing teachers to respond effectively to the diversity of student learning needs. (Wang et al., 2023) observing that this approach allows teachers to provide appropriate challenges for students with high reading skills, as well as providing additional support for those who need the achievement of the learning goals desired by the teacher to be achieved.

Factors influencing the success of implementation, such as a deep understanding of student needs, teacher flexibility, and careful use of assessment data, show that differentiated learning is a complex yet adaptive approach. This allows teachers to continuously adjust their teaching strategies based on students' progress and needs. Researcher from (Alstete et al., 2021; Iterbeke et al., 2020). clarifying and broadening our understanding of the benefits of differentiated learning, demonstrating its effectiveness in diverse contexts, including for multilingual learners and students of varying ability levels. This shows that differentiated learning is an inclusive approach that can be widely applied.

Thus, differentiated learning is proven to be an effective way to improve students' reading skills. This approach offers a comprehensive and flexible framework, allowing teachers to maximize each student's learning potential in reading skills. Although it is not a completely new concept, its systematic and evidence-based application in the context of modern reading teaching makes it a very relevant and effective strategy to improve students' reading skills in the era of increasingly advanced education. This research has limitations because it is only limited to research published by Elsevier and in general education from the world. Future research should identify more sources.



## CONCLUSION

Overall, differentiated learning can be synthesized as an approach that has proven effective in improving students' reading. SLR analysis of the articles that have been carried out shows that differentiated learning consistently improves reading comprehension, vocabulary knowledge, and student engagement. Key success factors include understanding student needs, teacher flexibility, and effective use of assessment data. Key components include adaptation of learning content, processes, and products, as well as continuous assessment. This approach has proven effective for different groups of students, including multilingual learners. The implications of the research include the need for teacher professional development, appropriate resource allocation, and teacher education curriculum adjustment.

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