

Application of Differentiated Instruction in the Teaching and Learning Process: A Systematic Review Towards a Proposed How-To-Guide

Shiena Mae B. Basiculan

Ilocos Sur Polytechnic State College Cervantes Campus Cervantes, Ilocos Sur Bachelor of Elementary Education

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ABSTRACT

Differentiated Instruction (DI) is globally recognized as essential for inclusive education, yet its application in resource-constrained contexts like the Philippines remains uneven. This study, conducted at Ilocos Sur Polytechnic State College – Cervantes Campus, developed a practical guide to clarify misconceptions, highlight effective strategies, and support teachers in diverse classrooms.

Using a systematic review of local and international literature, results were categorized into utilization, effects, and challenges. Evidence showed DI improves engagement, motivation, autonomy, and performance through diagnostic assessment, flexible grouping, and varied strategies. However, barriers such as overcrowded classrooms, limited resources, rigid curricula, and inadequate teacher preparation hinder consistent practice. The study concludes that DI is both a philosophy and a tool for equity, but sustainability requires stronger policy-practice alignment. Embedding DI in teacher education, providing contextualized resources for underserved schools, and fostering administrative and community support. A proposed HOW-TO-GUIDE on DI serves as a practical resource to bridge policy aspirations with classroom realities under the K to 12 program.

Keywords: Common challenges, Differentiated instruction, Effects, Systematic review, Teaching and learning process

INTRODUCTION

Background of the Study

Learner diversity is widely acknowledged as an enduring and complex challenge. Students across classrooms vary not only in their cognitive abilities, but also in cultural backgrounds, socio-economic status, language proficiencies, interests, learning styles, and emotional and behavioral needs. As such, there is growing international recognition that a one-size-fits-all approach to instruction is no longer adequate. Instead, educational systems around the world are increasingly embracing Differentiated Instruction (DI) as a strategic and ethical response to educational equity, inclusivity, and quality (Kahmann et al., 2022; Pozas et al., 2023).

Differentiated instruction is strongly aligned with the objectives of Sustainable Development Goal 4 (SDG 4) of the United Nations, which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. DI has emerged as a key pedagogical tool for achieving this goal, particularly in heterogeneous classrooms and inclusive education systems. In countries such as Finland, Canada, Australia, and the United States, DI has been widely adopted in policy and practice to address varying student needs while maintaining high academic standards (Gibbs & McKay, 2021; Smets et al., 2022).

Differentiated Instruction is viewed not just as a method for improving academic outcomes but as a philosophy of teaching that respects student differences. Multiple studies across Europe and North America show that DI positively impacts student motivation, autonomy, critical thinking, and engagement, particularly when

implemented through student-centered learning environments (Ziarnwald et al., 2022; Sapan & Mede, 2022; Qorib, 2024).

In Finland, for example, teacher education strongly emphasizes diagnostic assessment, flexible grouping, and instructional adaptation cornerstones of DI. Meanwhile, in Australia and the U.S., DI is often embedded in inclusive education policies and supported through digital learning tools and tiered interventions. However, even in these well-resourced settings, teachers report persistent challenges related to planning time, classroom management, and the complexity of implementing DI effectively (Smets et al., 2022; Al-Shaboul et al., 2021).

Teachers around the world report confusion between DI and simple instructional variation or remediation. This confusion leads to inconsistent implementation, with teachers either using DI selectively or failing to reach students on both ends of the achievement spectrum (Eikeland & Ohna, 2022; Sun & Xiao, 2024). Moreover, there is a growing concern that teacher education programs in many countries emphasize theoretical knowledge of DI but fall short in training future teachers in how to apply it in real-world, mixed-ability classrooms (Scarparolo & Subban, 2021; Ahearn, 2024).

The Philippines has made significant efforts to move toward more inclusive and learner-centered education through national policies and reforms. The Department of Education (DepEd) supports the principles of DI through the K to 12 Basic Education Curriculum, which emphasizes student-centered approaches, performance-based assessments, and contextualized learning. The use of Most Essential Learning Competencies (MELCs) and flexible learning modalities during the COVID-19 pandemic also created opportunities for teachers to vary content, processes, and assessments depending on learners' contexts and capacities. Despite these progressive policies, however, the actual practice of DI in Philippine classrooms remains inconsistent and limited.

Teachers, especially in public schools, often teach in overcrowded classrooms with minimal resources, making it difficult to tailor instruction to individual learners (Safriana et al., 2024; Somantri et al., 2024). Furthermore, DI is not systematically included in pre-service teacher training programs. As a result, many teachers report feeling unprepared to differentiate instruction effectively, and professional development programs tend to focus more on compliance with curriculum standards than on innovative pedagogical approaches (Maruf, 2023; Meriyati et al., 2023).

Another challenge at the national level is the perceived rigidity of the curriculum. Although the Most Essential Learning Competencies (MELCs) were designed to prioritize essential skills and allow for instructional flexibility, many teachers feel constrained by time pressures, coverage requirements, and standardized testing expectations. These conditions discourage experimentation with instructional models like DI, which require careful planning, assessment, and adaptation (Ahearn, 2024; Gaitas et al., 2024).

In rural and underserved regions of the Philippines, the gap between policy and practice becomes even more pronounced. Teachers working in multi-grade classrooms, remote schools, and low-income communities face compounded challenges. In these contexts, lack of textbooks, visual aids, technological resources, and internet connectivity severely hampers the implementation of even basic instructional differentiation (Al-Shaboul et al., 2021; Suwastini et al., 2021). In many rural schools, the average class size exceeds 30 to 40 students, making individualization virtually impossible without structural support.

Moreover, the cultural expectation that education should be uniform and standardized across all learners continues to influence instructional decisions. Teachers are often evaluated based on their ability to finish the curriculum rather than their ability to meet diverse student needs. Additionally, community involvement and parental support, which could aid in the implementation of DI strategies, are often minimal in disadvantaged areas. Teachers must then rely solely on their professional judgment and limited resources, which contributes to burnout and frustration (Al-Shaboul et al., 2021; Qorib, 2024).

Despite these local constraints, there are documented pockets of success where teachers adapt differentiated strategies in culturally and contextually relevant ways. For instance, some elementary educators in rural areas

have utilized local stories, multi-sensory activities, and informal peer tutoring as forms of differentiation, even without formal training or resources. These examples highlight the potential of DI when it is grounded in local realities and supported by strong teacher agency.

While differentiated instruction has been extensively studied in theory and in well-resourced educational contexts, there remains a significant gap in synthesizing evidence-based practices that are adaptable to developing countries and resource-constrained settings such as those in the Philippines (Hatmanto & Rahmawati, 2023). Although various studies have explored individual aspects of DI such as its effects on learning outcomes (Kahmann et al., 2022), its benefits in online learning (Ayuningtyas et al., 2023), or the constraints in practice (Al-Shaboul et al., 2021) there is limited comprehensive research that consolidates these findings into a practical, usable framework that Filipino teachers can employ in diverse and challenging classroom contexts.

This study aimed on collecting and analyzing s from various research studies to develop a practical and context-appropriate framework that teachers can use in real classroom settings. By bringing together different perspectives and experiences, the review hopes to clarify common misunderstandings about differentiated instruction, present effective strategies, and suggest realistic ways to apply them in the Philippine basic education system. The main goal is to support both policy-making and classroom teaching by providing a useful, research-based guide that responds to the needs of diverse learners, especially in schools with limited resources.

Framework of the Study

This study is anchored on four foundational pillars: Tomlinson's Differentiated Instruction Theory, Gardner's Theory of Multiple Intelligences, DepEd Order No. 42, s. 2017 (Philippine Professional Standards for Teachers), and Republic Act 10533 or the Enhanced Basic Education Act of 2013. These theories and policies collectively support the relevance and applicability of differentiated instruction in the contemporary teaching and learning process.

Tomlinson's theory of differentiated instruction, is a responsive teaching framework where educators adjust four key classroom elements to meet students' unique readiness levels, interests, and learning profiles. Teachers differentiate content by providing varied access to information, such as using reading materials at different difficulty levels or using reading buddies. The process is adapted through flexible grouping and tiered activities that allow students to grapple with the same essential ideas but with different levels of support. To differentiate products, teachers offer students diverse ways to demonstrate their mastery for example, choosing between writing a letter or creating a mural while ensuring each option remains high-quality and respectful. Finally, the learning environment is modified by creating a classroom space that balances quiet individual work areas with collaborative zones, ensuring the physical and emotional setting supports the diverse ways students learn best (Tomlinson, 2000).

Gardner's Multiple Intelligences Theory fundamentally challenges the traditional, singular view of intelligence by proposing that human intellectual capacity is multidimensional. Initially identifying seven intelligences linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, and intrapersonal, Gardner later added the naturalist intelligence. He emphasized that students learn in different ways and that instruction should be varied to accommodate these differences. In relation to this study, the theory provides a psychological foundation for differentiated instruction by affirming that learners process information in diverse ways. Therefore, teachers must design lessons that incorporate various methods, activities, and assessment tools to meet these individual needs. The systematic review will examine how this theory has been applied in instructional strategies and classroom practices, thereby reinforcing its integration in modern pedagogy (Gardner, 1993).

DepEd Order No. 42, s. 2017, which institutionalizes the Philippine Professional Standards for Teachers, specifically addresses the need for teachers to recognize and respond to learner diversity. Under Domain 3 (Diversity of Learners), teachers are expected to demonstrate knowledge of learners' different characteristics and use this knowledge to design and implement instruction that is responsive to individual differences. This policy directly aligns with the concept of differentiated instruction, as it mandates the personalization of teaching

strategies to ensure inclusive and equitable learning opportunities. In this study, the policy serves as a guiding framework for evaluating the relevance and consistency of differentiated instructional approaches within the Philippine educational context.

Meanwhile, Republic Act 10533, or the Enhanced Basic Education Act of 2013, supports the implementation of a learner-centered curriculum that promotes flexible learning experiences. It emphasizes the need to make education responsive to learners' developmental needs and capabilities. The law advocates for the adaptation of teaching methods to suit the learners' abilities, cultural backgrounds, and interests, which directly ties into the principles of differentiated instruction. Through this lens, the study aims to examine how differentiated teaching practices contribute to achieving the goals of the K to 12 program, particularly in improving student engagement, performance, and overall learning outcomes.

Together, these four frameworks serve as the conceptual backbone of the study. They inform the selection, analysis, and synthesis of literature in the systematic review, and provide a foundation for the proposed instructional output. By grounding the research in well-established theory and national education policy, the study ensures that its findings and recommendations are both theoretically sound and practically applicable.

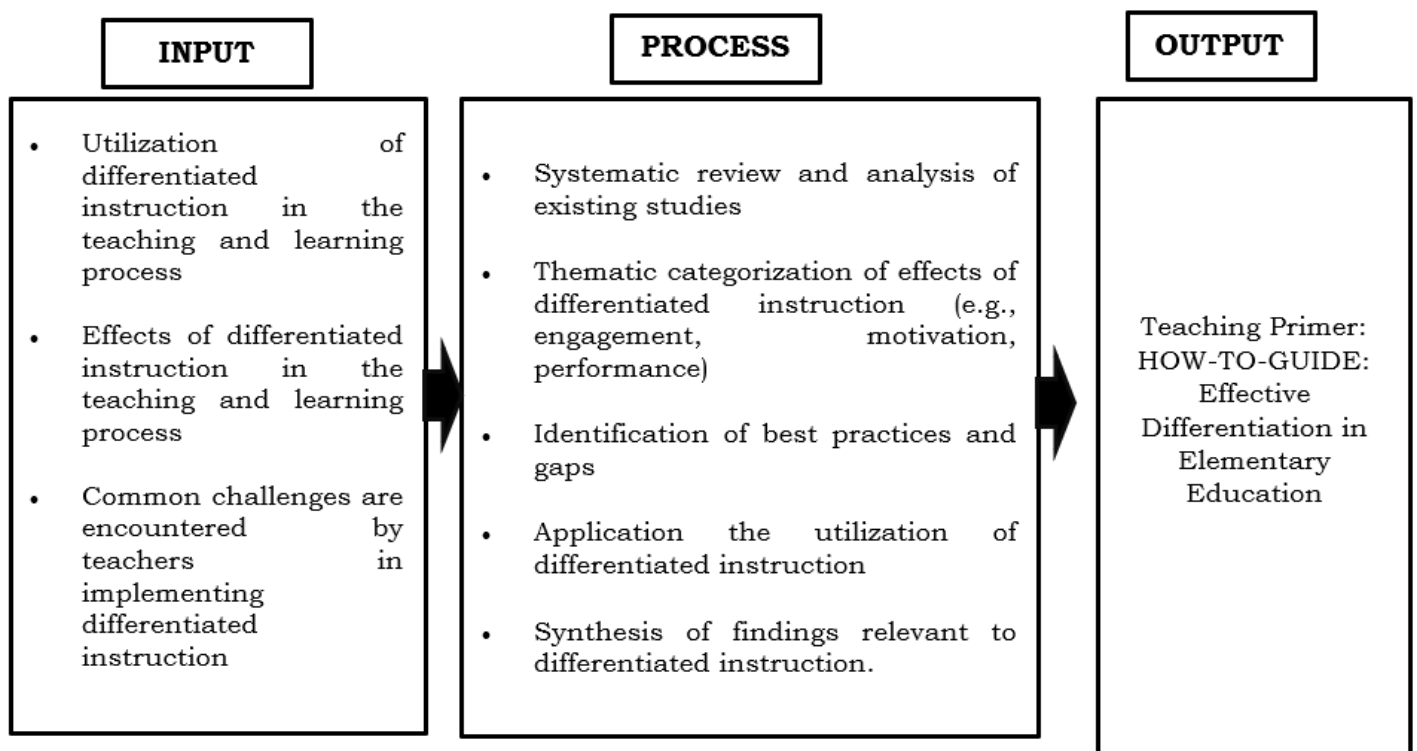


Figure 1. The Research Paradigm

The research paradigm, as illustrated in Figure 1, follows a structured Input-Process-Output (IPO) model designed to evaluate and enhance the application of differentiated instruction. The Input phase is centered on four critical research questions that drive the investigation: the current utilization of differentiated instruction in the classroom, its observed effects on the teaching and learning process, and the common challenges teachers face during implementation. These inputs provide the foundational inquiry necessary to understand how tailored pedagogical approaches impact student engagement, motivation, and overall academic performance.

The process stage outlines the systematic methodology used to transform the initial inquiries into actionable data. This phase involves a comprehensive systematic review and analysis of existing studies to ensure the research is grounded in established literature. Data is then organized through thematic categorization, specifically focusing on how differentiated instruction influences key variables such as learner engagement and motivation. Furthermore, the process includes the identification of best practices and existing gaps in current methodologies,

which allows for a practical application analysis regarding how these instructions are utilized in real-world educational settings.

The final Output of the study represents the culmination of the synthesized findings and their practical application to the field of education. By synthesizing findings relevant to differentiated instruction, the research moves beyond theoretical analysis to create a tangible resource. The primary findings is the HOW-TO-GUIDE: Differentiated Instruction Guide, an evidence-based tool designed to support educators. This output serves as a direct response to the initial research questions, offering a structured guide that addresses identified challenges and leverages best practices to optimize the teaching and learning process.

REVIEW OF RELATED LITERATURE

This section presents a comprehensive review of literature related to differentiated instruction in the teaching and learning process. The studies are categorized into four major themes: (1) differentiated instruction utilized in the teaching and learning process, (2) effects of differentiated instruction in the teaching and learning process, (3) common challenges encountered by teachers, and (4) proposed output.

Differentiated Instruction Utilized in the Teaching and Learning Process

The following studies and literature are about the utilization of differentiated instruction to meet the diverse needs of students in the teaching and learning process.

Qorib (2024) in his study published in Aksaqila International Humanities and Social Sciences, aimed to examine the impact of differentiated instruction (DI) on promoting critical diversity literacy in inclusive education settings. Using a qualitative literature-based approach, he reviewed various models of differentiation applied in diverse classroom contexts. The findings revealed that DI significantly facilitates student communication and comprehension, especially in environments with learners of different cultural, linguistic, and academic backgrounds. The study concluded that DI is not only a strategy for academic support but also a tool for enhancing inclusive practices. It recommended that schools integrate DI with teacher training programs that emphasize cultural responsiveness and inclusive pedagogy.

In another publication by Qorib (2024) in the International Journal Reglement and Society, the author conducted a comprehensive literature analysis to explore DI as a learning solution in the context of inclusive and moderate education. The objective was to understand how differentiation processes help address student diversity. The study found that when teachers adjust content, process, and assessment methods based on student needs, learning becomes more accessible and equitable. It concluded that DI can bridge educational gaps in diverse classrooms and recommended embedding differentiation in teacher professional development and curriculum design.

Goyibova et al. (2025) in their article in MethodsX, investigated how differentiated instruction supports diverse learner needs in general education settings. Employing a conceptual analysis, the authors emphasized that DI encourages greater student engagement and motivation by offering choices and flexible pathways. The study highlighted that grouping strategies, scaffolded tasks, and varied instructional approaches were key practices in promoting active learning. The researchers concluded that DI must be purposefully integrated into teaching practices and advised that teachers receive ongoing training to adapt instruction to learner diversity effectively.

Kamarudin et al. (2022) focused on the experiences of gifted and talented students in mathematics, specifically examining how differentiated instruction influenced their thinking processes. Using a qualitative follow-up design, the study revealed that DI allowed students to engage in higher-order tasks, deepening their mathematical understanding. The authors concluded that DI is effective not just for struggling learners but also for high-achieving students. They recommended incorporating tiered tasks and enrichment activities to better serve the needs of gifted learners in regular classrooms.

Suwastini et al. (2021) offered a conceptual review of differentiated instruction across English as a Foreign Language (EFL) classrooms. The authors adopted George's (2008) framework of DI and explored how teachers

applied content, process, and product differentiation. Their findings showed that DI strategies improved student comprehension and engagement in language learning. The review concluded that while DI is beneficial in EFL settings, its success depends heavily on teachers' understanding and application of DI principles. It recommended further training and resource support for EFL teachers.

Shareefa (2021) in a study published in the Asia Pacific Journal of Education, explored how teachers in small multigrade schools implemented DI. Using a qualitative case study approach, the research found that teachers used content and process differentiation to address multiple grade levels and abilities within one classroom. The study concluded that DI is particularly useful in multigrade settings and recommended that education systems develop context-specific DI training for teachers in remote or underserved areas.

Sulistianingrum et al. (2023) examined how student sensory learning styles were considered in creating differentiated content in science classes. Their qualitative case study involved interviews with five teachers and classroom observations. Findings indicated that sensory-based differentiation (e.g., visual, auditory, kinesthetic strategies) helped students better process information. The study concluded that recognizing students' sensory preferences enhances the effectiveness of DI and recommended that teacher preparation programs include modules on learning style assessment and instructional adaptation.

Somantri et al. (2024) in a study from the Journal of Primary Studies, investigated how DI was used to meet the diverse academic abilities of elementary school learners. This qualitative case study found that adapting materials and activities based on learners' readiness and interest levels led to better academic performance and higher participation. The study concluded that DI is essential in basic education and suggested that curriculum materials be designed with built-in differentiation options.

Meriyati and Sumianto (2023) conducted a quantitative study that assessed the effectiveness of DI strategies in addressing student diversity. Using survey data, the study found that optimized DI practices led to increased student satisfaction and improved performance. The authors concluded that the systematic use of DI can enhance the overall quality of education and recommended that schools adopt structured differentiation frameworks supported by regular monitoring and feedback.

Gibbs and McKay (2021) presented a systematic review in the International Journal of Educational Research, analyzing how DI is practiced in Australian mainstream classrooms. Their thematic analysis showed that while many teachers valued DI, its application was inconsistent due to varying levels of teacher knowledge, resource availability, and administrative support. The study concluded that DI remains underutilized and recommended more consistent policy support, clearer implementation guidelines, and embedded DI training in teacher education programs.

Mirawati et al. (2022) differentiated instruction is utilized as a strategic teaching approach designed to suit the diverse conditions, readiness, learning styles, and backgrounds of students. The implementation begins with a deep analysis of student characteristics through pre-assessments or individual interviews to identify specific needs. In the classroom, teachers utilize DI by adjusting four main elements: content, process, products, and the learning environment. For example, teachers may use diverse instructional strategies such as graphic organizers, tic-tac-toe, learning contracts, and complex instruction to accommodate various learning profiles. Furthermore, the process involves fostering a sense of community through group activities and collaborative learning, which allows students to interact and communicate based on their specific abilities and styles. Ultimately, the study emphasizes that for DI to be utilized effectively, teachers must move beyond a one-fits-all design to provide personalized materials and assessments that make every student feel welcome and supported.

Aguhayon et al. (2023) utilized differentiated instruction as a tailored intervention to bridge learning gaps and boost mathematical confidence among Grade 10 students following the pandemic. The researchers implemented DI over an eight-week period by employing diverse, student-centered strategies designed to accommodate various learning needs and prior knowledge. Specific instructional activities included math hunting to facilitate independent discovery of concepts, peer learning through student-led workshops and partnerships, and small group discussions to foster collective consensus. Furthermore, the study utilized board work for clear language

recording and bingo card games to offer students autonomy in selecting problem types, which enhanced computational fluency and motivation. The process concluded with a culmination activity where students integrated and demonstrated their depth of knowledge. Ultimately, the authors found that these DI methods allowed teachers to adapt curriculum delivery effectively, resulting in a significant improvement in student performance compared to traditional instruction.

Dianti et al. (2025) examine how Islamic Religious Education teachers at SND INPRES Tololara utilized differentiated instruction by focusing on student diversity and four core pedagogical aspects. To initiate the process, teachers employ diagnostic assessments to identify individual student backgrounds, interests, and readiness, which then allows them to map specific learning needs rather than generalizing the student body. The implementation strategy revolves around adjusting content to align with learner needs, varying the process to accommodate different learning styles, modifying the product to provide diverse evidence of mastery, and adapting the learning environment to ensure physical and social comfort. The study found that these teachers act as creative facilitators who customize lesson plans and assessment methods to ensure learning is accessible and engaging for all students.

Differentiated instruction (DI) serves as a transformative pedagogical framework designed to move beyond a one-size-fits-all approach by intentionally addressing the unique readiness levels, learning profiles, and interests of a diverse student body. The literature consistently demonstrates that the effective utilization of DI involves the strategic modification of four core elements: content, process, product, and the learning environment. By employing diagnostic assessments and pre-interviews, educators can map student needs to implement varied strategies such as tiered tasks, sensory-based materials, and flexible grouping. Research across various disciplines including mathematics, language arts, and religious education indicates that DI not only bridges academic achievement gaps and fosters higher-order thinking but also promotes inclusive practices and critical diversity literacy. Ultimately, the synthesis of these studies suggests that when DI is integrated into the teaching and learning process, it enhances student engagement, motivation, and satisfaction by creating an equitable environment where instruction is tailored to the individual learner.

The reviewed studies such as Aguhayon et al. (2023), Goyibova et al. (2025), and Somantri et al. (2024) exhibit strong agreement regarding the positive impact of differentiated instruction on student engagement and academic performance across different educational levels and subjects. Specifically, there is a consensus that diagnostic assessment is a critical precursor to successful implementation (Dianti et al., 2025; Mirawati et al., 2022). Inconsistencies arise regarding the consistency of its application; while some localized studies report high success rates in specific classrooms Aguhayon et al. (2023), systematic reviews highlight that DI remains underutilized and inconsistently applied in mainstream settings due to a lack of administrative support and teacher expertise (Gibbs & McKay, 2021). Furthermore, while much of the literature focuses on the conceptual benefits or qualitative experiences within inclusive or primary settings, there is a distinct literature gap concerning the long-term longitudinal effects of DI on student retention and the specific resource constraints faced by teachers in high-enrollment, under-resourced secondary environments. This study sought to address these gaps by examining the practical sustainability of DI strategies when faced with systemic barriers, thereby justifying the need for research that moves beyond “what” DI is to “how” it can be maintained under restrictive institutional conditions.

Effects of Differentiated Instruction in the Teaching and Learning Process

The following studies and literature explore the effects of differentiated instruction in the teaching and learning process.

According to the study conducted by Palieraki and Koutrouba (2021) the implementation of differentiated instruction significantly enhances the teaching and learning process by improving the quality of student assessment and increasing the level of active participation. The researchers found that utilizing a differentiated working routine consisting of individual work, collaborative grouping, and class presentations allows students to regulate their own learning, work at their own pace, and receive immediate feedback from both the teacher and their peers. Specific strategies such as flexible grouping and horizontal differentiation of activities ensure that tasks are challenging yet manageable for students with diverse readiness levels, thereby fostering a highly focused

and inclusive learning environment. Furthermore, tools like thumb it up cards and entry or exit slips provide teachers with continuous, accurate data to dynamically adjust their instruction and address specific student misconceptions or gaps in knowledge. While the complexity of managing multiple activities simultaneously can be challenging for educators, the overall effect is a more effective learning environment where every student, including those who are typically passive, is motivated to engage meaningfully with the curriculum.

Scott et al. (2021) differentiated instruction (DI) significantly enhances the teaching and learning process by providing specialized instruction that caters to the diverse cultural backgrounds, learning abilities, and interests of students. By utilizing Weimer's learner-centered teaching theory, DI shifts the balance of power in the classroom, transforming the teacher into a facilitator while empowering students as active participants in their own development. This approach fosters the growth of essential transferable skills, such as critical thinking, problem-solving, and reflective thinking. Furthermore, when effectively implemented, DI is shown to increase both achievement and learning motivation for a wide range of learners, including gifted students, those with disabilities, and English language learners. Ultimately, DI allows teachers to flexibly manage content and assessment, which maximizes individual student growth and helps transition them into independent learners.

Geletua and Mihirete (2022) effective differentiation proactively addresses the requirements of various learners including those who are gifted, visual, auditory, kinesthetic, or have learning difficulties by adjusting four key elements: content (what is learned), process (how it is taught), product (how learning is demonstrated), and the learning environment. When these elements are successfully aligned, the practice fosters higher student engagement, empowers learners to take ownership of their education, and improves overall learning outcomes. However, the study also highlights that a lack of proper differentiation can lead to a one-size-fits-all approach that fails to empower diverse learners or align with their specific engagement needs.

Angreni et al. (2026) differentiated instruction in the teaching and learning process has a broadly positive impact on student outcomes, particularly by increasing learning motivation, engagement, and academic achievement. Specific studies cited in the review highlight that this approach can effectively narrow achievement gaps between English language learners and native speakers, improve critical thinking and creative thinking skills, and enhance student collaboration. Furthermore, research indicates that differentiated instruction fosters a more inclusive learning environment when integrated with digital technology and can lead to positive cognitive and affective developments in specific subjects like algebra. However, the authors also note that while differentiation is an effective tool for responding to diverse learner readiness and interests, its implementation in regular classrooms often remains pedagogically adaptive rather than transformative, sometimes failing to fully address the deep-seated structural barriers and accessibility needs of students with disabilities.

Rini et al. (2023) the implementation of differentiated instruction significantly enhances the teaching and learning process by improving student engagement, motivation, and comprehension. By tailoring teaching strategies, content delivery, and assessment techniques to match individual learning profiles and interests, educators create a more inclusive and equitable environment where students feel more comfortable and connected to the curriculum. The research highlights that using diverse formats such as group-based learning, multimedia tools, and varied tasks fosters peer interaction and active inquiry, helping students to better retain information and achieve higher academic outcomes. Furthermore, this adaptive approach allows teachers to provide personalized guidance or scaffolding, which helps bridge specific learning gaps and encourages students to take intellectual risks in their educational journey.

Tundreng et al. (2025) the effects of differentiated instruction on the teaching and learning process are predominantly positive, significantly enhancing student engagement and academic outcomes. In the learning process, DI reduces student stress and anxiety by shifting the focus from meeting uniform teacher expectations to achieving personal growth based on individual readiness and strengths. This approach fosters a fun, active, and inclusive classroom atmosphere where even previously passive or reluctant students feel comfortable participating. Over time, these practices lead to visible improvements in both students' attitudes toward learning and their knowledge levels, as instruction is tailored to their specific interests and learning profiles. However, the teaching process becomes more demanding for educators, as implementing DI requires significant time for lesson preparation, diagnostic assessments, and the creation of varied teaching modules to address diverse needs.

Roberts and Inman (2023) in their book *Strategies for Differentiating Instruction: Best Practices for the Classroom*, aimed to provide teachers with practical approaches for using differentiated instruction across various content areas. The book offered a wide range of tools and resources, including curriculum compacting, flexible grouping, and tiered assignments. Their work emphasized that effective DI depends on understanding student needs and aligning content, process, and product accordingly. They concluded that systematic planning and reflective practice are essential for implementing DI across disciplines and recommended that teachers use student data to inform differentiation strategies.

Titus (2025) differentiated instruction significantly enhances the teaching and learning process by positively impacting students' empowered learning skills. The research demonstrates that implementing differentiated strategies specifically by tailoring the content, process, and product of lessons to accommodate diverse student readiness levels and interests leads to measurable improvements in students' feelings of meaningfulness, competence, impact, and choice. Unlike traditional one-size-fits-all methods, this approach fosters a student-centered environment where learners feel more valued and motivated, as teachers transition from being sole information providers to facilitators who respect individual differences. Ultimately, the study concludes that differentiated instruction is an effective pedagogy for empowering both gifted and struggling learners in mixed-ability classrooms, resulting in significantly higher academic outcomes and greater active participation compared to traditional teaching methods.

Tomlinson and Jarvis (2023) in their contribution to differentiated curriculum development, focused on responsive planning and instruction as a means to serve all students across subject areas. Their work highlighted the need for curriculum design that allows students to explore areas of personal interest while still meeting academic standards. They emphasized that effective differentiation requires not only adjusting content but also considering student readiness and affect. They concluded that differentiation enhances both equity and excellence in education and encouraged educators to embed flexibility into their instructional plans.

Renzulli (2023) in *The Multiple Menu Model*, presented a comprehensive framework for designing differentiated curriculum. His model includes multiple pathways for students to engage with content based on their interests, strengths, and learning preferences. Renzulli's work was based on years of classroom observation and collaboration with teachers, emphasizing enrichment and creativity in teaching. He found that the use of multiple menus led to higher student motivation and deeper learning across subjects. He concluded that differentiation should not only remediate gaps but also cultivate students' talents and recommended that schools adopt enrichment clusters as part of their curriculum design.

Wormeli (2023) explored the challenges and strategies of applying DI in secondary education, particularly when teaching multiple subjects. Using anecdotal and research-based evidence, he illustrated how teachers can plan lessons that address a wide range of abilities within subject-specific goals. Wormeli stressed the importance of differentiated assessment and flexible deadlines, concluding that authentic differentiation promotes both academic success and student responsibility. He advised teachers to prioritize relationship-building and formative feedback as foundations of effective DI.

Tomlinson and Imbeau (2023) in *Leading and Managing a Differentiated Classroom*, examined how differentiation principles remain consistent across different content areas. Their findings showed that although content may vary, the core of differentiation respect for student differences, proactive planning, and ongoing assessment applies universally. They argued that leadership, collaboration, and administrative support are crucial for maintaining a differentiated learning environment. Their conclusion emphasized the role of school-wide systems in sustaining DI, and they recommended institutionalizing professional learning communities (PLCs) focused on differentiation practices.

Sulistianingrum et al. (2023) explored how science teachers used student sensory learning styles to differentiate content. In their qualitative study, teachers reported using visual aids, hands-on experiments, and verbal instructions tailored to learners' preferences. The study concluded that recognizing sensory styles enhances instruction across content areas, particularly in science, and suggested that content differentiation be grounded in ongoing assessment of student learning styles.

Castro et al. (2024) investigated the experiences of teachers who handle multiple subject areas, particularly in under-resourced schools. Their findings indicated that while differentiation was recognized as effective, it became more complex and burdensome when teachers had to manage varying demands across subjects. They concluded that differentiated instruction requires strong adaptive skills and support structures. Their recommendation emphasized the need for clearer guidelines and collaborative planning time for teachers who teach across different subjects.

Maruf (2023) in his study on EFL teachers in Indonesia, examined the role of teacher beliefs and attitudes in the implementation of DI. Although focused on English language instruction, the findings suggested that teachers who were confident in their understanding of DI applied it more effectively, regardless of content. He concluded that DI can be successfully applied across subject areas when teachers receive adequate support and professional development, and he recommended that teacher education programs include modules on differentiation theory and application.

The reviewed literature consistently validates that differentiated instruction (DI) serves as a transformative pedagogical framework that significantly bolsters student engagement, academic achievement, and intrinsic motivation across diverse educational settings. These findings move in a unified direction, collectively asserting that by tailoring content, process, and product to individual readiness, interests, and learning profiles, educators can transition from a one-size-fits-all to a student-centered environment that fosters autonomy and inclusivity. While the studies are harmonious regarding the positive cognitive and affective outcomes for students—ranging from reduced anxiety to the development of high-level critical thinking—they also converge on the practical reality that DI increases the complexity of classroom management and demands substantial preparation time from teachers. Ultimately, the research synthesizes into a clear consensus: DI is an effective tool for achieving both equity and excellence, provided it is supported by formative assessment, adaptive teaching skills, and institutional resources.

While there is a robust agreement among scholars regarding the positive cognitive and affective outcomes of DI—specifically its ability to foster inclusivity and empower learners (Rini et al., 2023; Tomlinson and Jarvis, 2023) significant inconsistencies exist regarding its practical sustainability. For instance, while some studies highlight the ease of using digital tools and multiple menus to streamline differentiation (Angreni et al., 2026; Renzulli, 2023), others contrast this by highlighting the burdensome complexity and heavy time demands placed on educators, particularly in under-resourced or secondary settings (Castro et al., 2024; Tundreng et al., 2025). The benefits to students or the theoretical frameworks of DI, but there is a lack of longitudinal evidence on how teachers can maintain high-fidelity DI across multiple subject areas without succumbing to burnout. Furthermore, Angreni et al. (2026) note that DI often remains pedagogically adaptive rather than transformative, failing to dismantle deep-seated structural barriers. This study seeks to address these gaps by investigating the specific adaptive strategies and systemic support structures necessary to transition DI from an exhausting, isolated classroom practice into a sustainable, school-wide instructional reality.

Common Challenges Encountered by Teachers in Implementing Differentiated Instruction

The following studies and literature highlights the common challenges encountered by teachers in implementing differentiated instruction.

Ahmed (2022) in his study on EFL teachers working with multiple-intelligence classes at the university level, investigated the practical challenges faced in implementing differentiated instruction. Using a qualitative approach, he found that while instructors possessed a basic understanding of DI, they struggled with aligning instructional strategies to students' diverse intelligence profiles. Time constraints, limited resources, and rigid curricular expectations were reported as significant barriers. Ahmed concluded that professional development in DI and greater institutional flexibility are necessary for effective implementation.

Shareefa (2021) explored differentiated instruction in multigrade classrooms in small schools, focusing on both the benefits and challenges experienced by teachers. The qualitative study revealed that while DI enabled inclusive practices and improved student engagement, it also demanded significant time for planning and individualized

assessment. Teachers reported feelings of exhaustion and the need for stronger administrative support. Shareefa recommended simplifying curricular expectations and providing more training to help teachers manage multigrade differentiation effectively.

Pozas et al. (2023) examined the psychological impact of DI on teachers, particularly regarding stress and job satisfaction. Through a mixed-methods approach, their study found that while differentiated instruction improved student outcomes, it often led to teacher burnout due to the complexity of implementation and the emotional labor involved. The authors concluded that sustained DI practices must include support systems to mitigate stress and recommended institutional policies to balance instructional demands with teacher well-being.

Suwastini et al. (2021) conducted a conceptual review of DI in EFL classrooms, highlighting both pedagogical benefits and challenges. They identified that although DI fosters student engagement, it requires considerable time and effort for lesson planning, especially in linguistically diverse classrooms. Teachers often felt overwhelmed due to limited preparation time and insufficient resources. The authors concluded that consistent mentoring and collaborative planning are essential for sustaining DI, particularly in foreign language contexts.

Qorib (2024) in his broader analysis of DI in inclusive and moderate education, also addressed practical challenges encountered by teachers. He identified the unpredictability of student needs, the pressure of daily teaching schedules, and the lack of differentiation tools as major constraints. His study emphasized that, despite the promise of DI, its success heavily depends on contextual support. He recommended aligning DI implementation with educational reforms and institutional infrastructure.

Gibbs and McKay (2021) conducted a systematic review of Australian mainstream classrooms to assess the extent and nature of DI implementation. Their analysis revealed that despite growing awareness, actual classroom application remained limited. Key obstacles included insufficient training, lack of time, and inconsistent school policies. The study concluded that a coordinated, systemic approach is necessary to scale DI practices and recommended national-level professional development frameworks.

Ziarnwald et al. (2022) performed a systematic review on DI for high-achieving students in mixed-ability classrooms. While they confirmed the positive effects of DI in supporting advanced learners, they highlighted a persistent lack of teacher training and preparedness as a key challenge. Teachers reported difficulty in designing tiered tasks and maintaining equity. The authors concluded that teacher education should include specific modules on differentiation strategies for varied ability levels.

Mirawati et al. (2022) the implementation process is frequently described as time-consuming because teachers must invest extra effort into preparing, conducting, and assessing personalized lessons, often without sufficient time allotments. Furthermore, teachers face the risk of students or parents perceiving differentiated treatments as a form of partiality or unfairness, especially when different tasks or assessment media are used for different students. Finally, large class sizes and limited physical space complicate the teacher's ability to move around, provide individual assistance, and effectively monitor the diverse needs of every student.

Suryati et al. (2023) the primary challenges teachers encounter when implementing differentiated instruction (DI) are the significant time and effort required to prepare and design tailored learning processes, alongside a lack of support from fellow educators. The research highlights that the preparatory stage is particularly demanding, as teachers must conduct assessments of student needs and learning styles while developing varied lesson plans, media, and methods to facilitate diverse learners. Furthermore, many teachers struggle to receive collaborative support because some colleagues remain in their "comfort zones" or lack an understanding of DI practices. These findings are consistent with broader academic literature, which identifies heavy workloads, inadequate training, and the difficulty of managing various instructional elements as persistent obstacles to successful differentiation.

Massey (2025) teachers in elementary grades face a variety of multifaceted hurdles when implementing differentiated instruction (DI). The primary challenges identified include a significant lack of sufficient time for both planning and executing daily lessons, as well as a scarcity of necessary instructional resources and tools. Additionally, educators struggle with insufficient professional knowledge and a lack of specialized training or

professional development, which leaves many feeling unprepared to handle the complexities of diverse student levels and the mental demands of tailoring instruction for every student. Beyond these practical constraints, teachers also encounter obstacles related to inadequate administrative support, difficulties in developing appropriate assessment tools, and the challenge of implementing DI within existing curricula that may not be designed for such flexible methodologies.

Grecu (2022) teachers implementing differentiated instruction through prepared curricular resources like the EngageNY modules face several significant challenges. One primary obstacle is the overwhelming volume of information; for instance, a single lesson can span 18–20 pages, necessitating extensive preparation time and the creation of supplemental materials like PowerPoints. Furthermore, educators often grapple with restrictive time constraints and administrative mandates that require them to follow scripts to "fidelity," which many feel stifles their professional agency and creativity. Additionally, teachers may initially doubt students' abilities to handle the rigorous workload independently and face technical barriers, such as the difficulty of converting rigid PDF resources into usable formats for their diverse learners.

Silmi et al. (2025) teachers implementing differentiated instruction in 21st-century education face several significant challenges that can hinder its effectiveness. A primary obstacle is time management, as the preparation and execution of diverse lesson plans tailored to individual student needs are highly demanding. Furthermore, the study identifies limited human resources and a lack of specialized teacher competence as critical barriers, emphasizing that successful implementation requires advanced skills in innovation and classroom management. Teachers also encounter psychological and social challenges, such as managing perceptions of inequity among students who may feel they are being treated unfairly when receiving different tasks or materials. Additionally, the complexity of managing a classroom with multiple simultaneous learning trajectories and the need for adequate support from the broader education system remain persistent hurdles for educators.

Kusrini et al. (2025) teachers frequently struggle with a severe shortage of time needed to design varied materials, multi-methods, and multimedia resources tailored to individual learning styles. The study identifies classroom management and the limited availability of suitable instructional resources as persistent obstacles. Furthermore, educators face difficulties in accurately analyzing complex student characteristics and find it challenging to balance individualization with the standardization requirements of the broader education system. Research also highlights that a lack of collaboration among colleagues and insufficient school facilities can further impede the effective execution of differentiation strategies.

Mardhatillah and Suharyadi (2023) the implementation of Differentiated Instruction (DI) in EFL classrooms is frequently hindered by several practical and systemic obstacles. The most significant challenges identified include a critical lack of planning and instructional time, which prevents teachers from designing varied resources like tiered tasks or interactive materials. Teachers often face high student-to-teacher ratios and a lack of appropriate tools or digital resources, leading many to feel pressured to revert to "one-size-fits-all" traditional methods to complete the prescribed curriculum. Furthermore, the study highlights that inadequate pre-service training and a general inexperience with DI's basic concepts can result in a negative perception of the approach, as teachers may struggle to balance the increased workload with the diverse readiness levels and interests of their students.

Baraily and Sherpa (2024) teachers face a multitude of systemic and practical hurdles when trying to implement differentiated instruction in regular classrooms. The study identifies several core challenges, most notably the inadequacy of professional training, an excessive workload, and a significant lack of knowledge regarding effective instructional planning. Furthermore, environmental factors such as large class sizes that exceed government standards, severe time constraints, and a lack of necessary resources—specifically assistive devices for students with disabilities—render the modification of curricular content difficult and often impracticable. Teachers also reported a lack of flexibility in school schedules and a persistent culture of traditional, non-collaborative teaching methods, which prevents the diagnostic coordination needed to address the diverse interests and learning capacities of every student.

Differentiated Instruction (DI) is widely recognized as a transformative pedagogical approach for fostering inclusivity and student engagement, its implementation is consistently hindered by a complex interplay of

systemic and practical barriers. Researchers across various educational context ranging from EFL and multigrade classrooms to gifted education unanimously identify chronic time constraints, inadequate professional training, and a lack of instructional resources as the primary deterrents to success. The evidence suggests that DI is not merely a technical shift in teaching but a high-stakes emotional and physical undertaking, often leading to teacher burnout and psychological stress due to the "fidelity" demands of rigid curricula. Furthermore, the literature highlights a significant gap between theoretical awareness and actual classroom practice, emphasizing that without robust institutional support, collaborative environments, and flexible administrative policies, teachers frequently revert to traditional one-size-fits-all methods to manage heavy workloads and large class sizes.

Ahmed (2022) and Shareefa (2021) focus on practical classroom management, more recent research such as Pozas et al. (2023) and Silmi et al. (2025) shifts toward the psychological impact, highlighting teacher exhaustion and the social perception of unfairness among students. A critical literature gap exists in the lack of longitudinal data and specific intervention frameworks that move beyond identifying problems toward testing sustainable, technology-integrated solutions for overloaded teachers. Most current research remains descriptive or identifies lack of support as a broad category without detailing the specific types of digital tools or peer-collaboration models that could realistically offset the 18–20page preparation demands noted by Grecu (2022).

Proposed Output

The following studies and literature provide for the proposed output on differentiated instruction.

Qorib (2024) this guide must be rooted in a flexible curriculum that adapts to student diversity rather than following a rigid, standardized path. Key pedagogical strategies include using flexible grouping, where groups change based on evolving needs, and employing multiple approaches such as visual, auditory, and kinesthetic methods to accommodate various intelligences. Furthermore, the primer should emphasize humanistic principles, positioning the teacher as a facilitator who creates a safe, inclusive environment where students take responsibility for their own learning. By consistently applying these assessments and modifications, the instruction becomes a dynamic process that transforms students from mere consumers of knowledge into active producers.

Mirawati et al. (2022) the study emphasizes that a successful guide must guide teachers in conducting diagnostic assessments to identify variations in student readiness, interests, and learning profiles before instruction begins. Key evidence-based strategies highlighted include the use of tiered activities, flexible grouping, and scaffolded instructions, which allow students to engage with the curriculum at their own pace and through their preferred learning modalities. Furthermore, the researchers suggest that the primer should incorporate ongoing formative assessment as a core mechanism to adjust teaching in real-time, ensuring that the instructional design remains responsive to student progress. By integrating these elements, the primer serves as a practical roadmap for transforming traditional classrooms into inclusive environments that maximize the potential of every learner.

Suwastini et al. (2021) the for differentiated instruction should be built upon a framework of student-centeredness and flexibility to accommodate the unique diversity of learners. This primer should guide educators in performing preliminary assessments to identify students' varying readiness, interests, and learning profiles (encompassing learning styles, intelligence, and culture) as the first step in instructional design. Specifically, the primer would recommend evidence-based strategies for differentiating four core curriculum elements: content (varying reading materials or difficulty levels), process (utilizing flexible grouping and tiered activities), product (allowing diverse ways for students to demonstrate mastery, such as oral, written, or digital presentations), and affect (addressing students' emotions and motivations). Furthermore, it should emphasize the necessity of continuous teacher reflection and school management support to overcome common implementation challenges like time constraints and increased workload, ultimately fostering an environment where all students, regardless of their proficiency level, can reach their highest potential.

Al-Shaboul et al. (2021) an evidence-based teaching primer for differentiated instruction should focus on addressing systemic constraints while providing practical, hands-on pedagogical support for teachers. To be effective, this primer must move beyond theoretical knowledge to provide pre-prepared lesson models and specific strategies—such as flexible grouping and "think-pair-share"—that help teachers manage the high workload and

time pressure identified as major obstacles. The research suggests that the primer should emphasize the importance of conducting pre-assessments to identify students' readiness and learning patterns, as this is a foundational but often neglected step. Furthermore, it should recommend structural adjustments, such as reducing class sizes and optimizing the curriculum length, to allow teachers the necessary space to move from traditional spoon-feeding methods toward student-centered, higher-order thinking activities. Finally, because the study found that experienced teachers and those in certain disciplines applied differentiation more successfully, the primer should encourage peer-sharing opportunities and discipline-specific training to ensure all educators can effectively meet the diverse needs of their learners.

The literature collectively highlights that an effective teaching primer for differentiated instruction must transition from a rigid, one-size-fits-all model to a flexible, student-centered framework rooted in diagnostic and formative assessments. Across the studies, there is a strong consensus that identifying student readiness, interests, and learning profiles is the essential first step in instructional design. Key evidence-based strategies such as flexible grouping, tiered activities, and scaffolded instruction are identified as the primary vehicles for delivering diverse content and processes. Furthermore, the synthesis reveals that a successful primer does not just provide theoretical knowledge; it must offer practical, hands-on support—including prepared lesson models and reflective practices—to transform the teacher's role from a source of information into a facilitator of an inclusive, dynamic learning environment.

While the reviewed studies universally agree on the necessity of pre-assessments and flexible grouping, they diverge in their specific focus on implementation hurdles. Suwastini et al. (2021) and Al-Shaboul et al. (2021) emphasize systemic challenges such as time constraints, high workloads, and the need for administrative support, whereas Qorib (2024) focuses more on the philosophical shift toward humanistic principles and student autonomy. A significant inconsistency exists regarding the product of learning: while Suwastini et al. (2021) explicitly detail differentiation in student outputs (oral, written, digital), other studies focus more heavily on the process and environment. A critical literature gap remains in the lack of discipline-specific, "ready-to-use" pedagogical models for diverse classroom sizes; most literature offers general frameworks but lacks a concrete, scalable primer that integrates affective domain support (emotions and motivation) with practical workload-reduction strategies. This research aims to bridge that gap by developing a comprehensive primer that balances high-level differentiation theory with pragmatic, time-efficient tools for everyday classroom use.

Research Questions

This study aimed to examine the implementation of differentiated instruction in the teaching and learning process at the elementary level. Specifically, it sought to answer the following questions:

1. How is differentiated instruction utilized in the teaching and learning process?
2. What are the effects of differentiated instruction in the teaching and learning process?
3. What common challenges are encountered by teachers in implementing differentiated instruction?
4. What output could be developed based on the findings?

Importance of the Study

This study is significant as it provides a research-based synthesis of differentiated instruction. By consolidating evidence-based practices, the findings serve as a vital resource for enhancing educational equity and quality in diverse classroom settings. The findings are particularly valuable to the following:

For Students. This research could identify how tailored instruction in content, process, and product can reduce learning anxiety and boost motivation. It could ensure that learners—whether gifted, struggling, or possessing unique sensory profiles—receive the specific support needed to improve their academic performance and engagement.

For Teachers. The study could provide a validated teaching primer that translates complex DI theories into actionable classroom strategies. It could offer guidance on how to manage diverse learning trajectories and utilize flexible grouping, helping educators move from traditional lecturing to becoming creative facilitators of learning.

For School Administrators. This research could offer a data-driven basis for institutional support, highlighting the need for collaborative planning time and reduced administrative rigidity. It justifies the allocation of resources for instructional tools and professional development that prioritize inclusive pedagogy over simple curriculum compliance.

For Curriculum Developers. It could provide insight into designing flexible, built-in differentiation options within instructional materials. By aligning curriculum design with learner readiness and interests, developers can ensure that educational content is both rigorous and accessible to students in various socio-economic contexts.

For Researchers and Academics. This study could identify critical gaps in current literature, specifically the need for longitudinal data and technology-integrated solutions to ease teacher workload. It could contribute to the theoretical discourse by bridging Tomlinson's DI framework with Gardner's Multiple Intelligences in a modern, practical context.

For Policymakers and the Department of Education (DepEd). The results align with national mandates such as the K to 12 Law (RA 10533) and the Philippine Professional Standards for Teachers (PPST). By identifying systemic barriers in rural and overcrowded schools, the study could support evidence-based policy development aimed at achieving Sustainable Development Goal 4 (SDG 4) for inclusive and equitable education.

METHODOLOGY

Research Design

This study employed a systematic review as its primary research design, which is defined as a structured, transparent, and replicable method for identifying, evaluating, and synthesizing all available and relevant research on a specific topic (Page et al., 2021). Unlike narrative reviews, this design followed a rigorous methodology with predefined inclusion and exclusion criteria to minimize bias and increase the reliability of findings. The systematic review was highly appropriate for addressing the Statement of the Problem (SOP) because it allowed for a comprehensive examination of differentiated instruction in elementary education, specifically helping to uncover patterns and empirical support regarding its utilization and effects. By utilizing the PRISMA 2020 guidelines—which involve identification, screening, eligibility, and inclusion phases—the design provided a robust framework to answer the research questions concerning teacher challenges and the development of an evidence-based teaching primer. This cumulative approach was essential for establishing the evidence-based practice required to fulfill the study's general objectives (Moher et al., 2015; Tricco et al., 2021; Page et al., 2021).

Sources of Data

This systematic review focuses on studies involving elementary students (Kindergarten through Grade 6) and their teachers, as identified in the included literature.

Since this study is a systematic review, this study did not involve human participants or field-based data collection. Instead, it drew from previously published literature relevant to differentiated instruction. The reviewed literature spanned research conducted globally, though it was selected with accessibility and relevance to Filipino and Southeast Asian educational contexts in mind. Therefore, conceptual rather than geographical, focusing on academic databases accessible online.

However, the research was conducted by the proponent at Ilocos Sur Polytechnic State College, which served as the base for analysis and documentation.

This inclusion and exclusion criteria are based from PRISMA 2020 guidelines (PRISMA 2020). The following table presents the parameters used to include or exclude studies for review:

Inclusion and Exclusion Criteria

Parameter	Inclusion Criteria	Exclusion Criteria
Types of Research	Peer-reviewed studies including: systematic reviews, action research, comparative study, quasi-experimental, quantitative, qualitative, mixed methods, and conceptual papers.	Unpublished works, blogs, editorials, dissertations, and opinion pieces.
Study Population	Studies that involve elementary-level students (Kindergarten to Grade 6) and their teachers.	Studies involving high school, tertiary, or adult learners.
Language	Studies published in English.	Articles written in other languages not accessible to the researcher.
Time Frame	Published from 2021 to 2025 to ensure relevance and recency.	Studies published before 2021.
Access	Studies available through open-access databases such as ERIC, Google Scholar, ResearchGate, ScienceDirect.	Restricted access databases requiring institutional subscriptions not available to the researcher.

These parameters ensure that the review synthesizes reliable, current, and context-relevant findings that can guide the development of a proposed how-to-guide for differentiated instruction.

Data Gathering Procedure

This systematic review follows a transparent and structured process guided by the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework to ensure methodological rigor and replicability. The criteria prioritize high-quality, peer-reviewed research, such as systematic reviews, action research, and mixed-methods studies, while deliberately filtering out gray literature like blogs, editorials, and unpublished dissertations. To ensure the findings are contextually relevant to the primary educational setting, the study population is strictly limited to elementary-level students (Kindergarten to Grade 6) and their teachers, excluding any research centered on high school, tertiary, or adult learners. Furthermore, the review emphasizes recency and accessibility by including only English-language articles published between 2021 and 2026. This six-year window ensures that the gathered evidence reflects current pedagogical trends and technological advancements. To maintain transparency and feasibility, the search is confined to open-access databases—including ERIC, Google Scholar, and ResearchGate—thereby bypassing restricted studies that require unavailable institutional subscriptions.

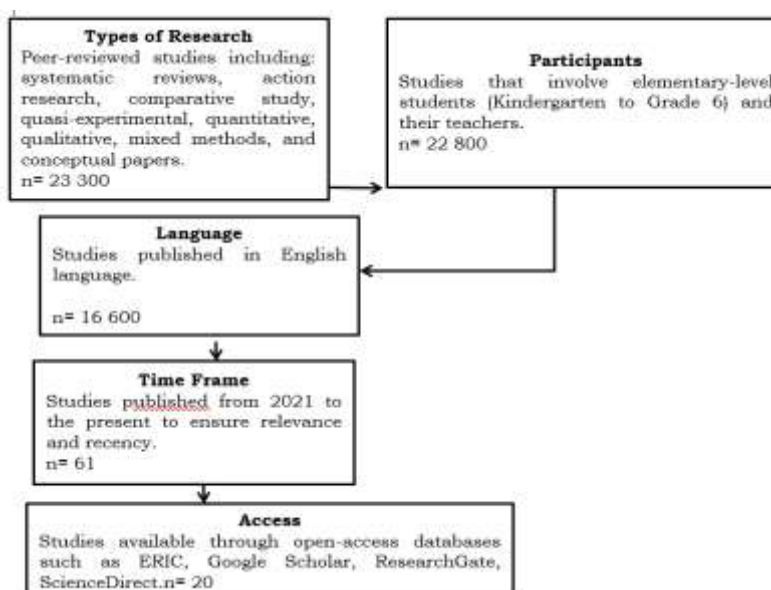


Figure 2. PRISMA 2020 Flow Diagram

Data Analysis

The first phase involves systematic data extraction, where full-text articles are reviewed to identify key study characteristics, including research designs, participant profiles, and specific pedagogical strategies. This structured process ensures analytic rigor and consistency across the corpus. In the second phase, the extracted data is categorized into thematic anchors—such as the forms of differentiated instruction, its effects on student engagement, and common implementation barriers—linking the findings directly to the study's theoretical framework. The third phase focuses on knowledge synthesis and translation, where the identified themes and patterns are integrated to generate evidence-based conclusions. These insights are then synthesized into a coherent narrative that explores the instructional value of differentiated instruction across various educational contexts. Finally, the analysis culminates in the development of a teaching primer. This translational output bridges the gap between empirical research and classroom practice by converting synthesized evidence into actionable, stage-specific instructional guidance and a conceptual framework tailored for elementary education.

Ethical Considerations

This study adhered to the ethical principles of integrity, respect, and responsibility in research. As a systematic review, this research primarily involved analyzing and synthesizing existing literature, and therefore, did not include direct involvement of human participants. However, ethical considerations remained essential in ensuring transparency, academic honesty, and responsible scholarship.

First, only peer-reviewed and credible sources from reputable databases (e.g., Google Scholar, ERIC, ScienceDirect, and ResearchGate) published from 2021 onwards were selected for inclusion, ensuring the reliability and relevance of data. All selected studies were cited appropriately following APA 7th edition citation standards to uphold academic integrity and avoid plagiarism.

Second, inclusion and exclusion of studies followed a systematic and unbiased screening process based on predetermined eligibility criteria. The researcher remained neutral and objective during article selection, data extraction, and synthesis to prevent misrepresentation of findings.

Third, the proposed instructional framework, which would be developed based on the review findings, would be grounded in evidence and best practices in pedagogy. Any future application or piloting of this framework in educational settings would undergo further ethical review and would require informed consent from participants, confidentiality, and approval from the appropriate institutional ethics board.

Lastly, this study complies with the ethical standards set by the Ilocos Sur Polytechnic State College and other applicable guidelines governing educational research. The final manuscript would acknowledge all data sources, and no data would be manipulated or misused in any form.

FINDINGS AND DISCUSSION

This chapter presents the findings and discussion of the study on differentiated instruction in the teaching and learning process. The findings are based on a review of selected research articles and related literature, which were carefully analyzed and synthesized. The analysis focused on how differentiated instruction is utilized in terms of content, objectives, assessment, and classroom environment, as well as its effects on teachers and students. Also, it discusses the common challenges encountered by teachers in implementing differentiated instruction. Through thematic analysis, the findings provide a clearer understanding of how differentiated instruction influences instructional responsiveness, teacher competence, academic achievement, student engagement, and inclusive learning.

Utilization of Differentiated Instruction in the Teaching and Learning Process

The utilization of differentiated instruction in the teaching and learning process analyzed through four sub-themes: (1) content differentiation, (2) objective differentiation, (3) assessment differentiation, and (4) learning

environment differentiation.

Content Differentiation. Content differentiation involves adapting what students learn or how they access the information to ensure all learners, regardless of their starting point, have an equal opportunity to reach educational goals. This sub-theme highlights that teachers facilitate student differences by providing curriculum variations and tailored materials that address specific learning gaps. DI is specifically utilized to improve comprehension through the use of tailored instructional resources. Suwastini et al. (2021) and Anantama and Romadhon (2025) emphasize that this differentiation is not merely about providing different activities, but rather focusing on distinct pathways of progression to meet high-level learner needs, particularly for gifted and talented students.

Teachers facilitate student differences by providing curriculum variations that offer equal opportunities to achieve goals (Suwastini et al., 2021).

DI involves adapting the school curriculum to meet high-level learner needs, particularly for gifted and talented students (Anantama & Romadhon, 2025).

Implementation involves a focus on pathways of progression rather than just varied activities (Renzulli, 2021).

Curriculum variation is a foundational code within content differentiation, representing the strategic adjustment of the school curriculum to meet the unique needs of diverse learners. Renzulli (2023) posits that DI involves adapting the school curriculum to meet high-level learner needs, particularly for gifted and talented students. By modifying the depth or breadth of the curriculum, educators can ensure that advanced learners remain challenged while providing accessible entry points for those struggling with the core material.

This variation is essential for bridging educational gaps in diverse and inclusive classrooms. Teachers facilitate student differences by providing curriculum variations that offer equal opportunities to achieve goals. This approach moves away from a one-size-fits-all, allowing for a more equitable educational experience where the curriculum is a flexible tool rather than a rigid barrier.

The use of tailored materials is a practical application of content differentiation, where instructional resources are specifically modified to enhance comprehension. It indicates that in specialized subjects like Araling Panlipunan or Science, DI is used to close learning gaps and improve comprehension through tailored instructional resources. For example, in an inclusive primary school setting, a teacher might use tailored worksheets and English-captioned or subtitled videos to ensure equitable engagement for both regular and special needs students.

The effectiveness of these materials often depends on the subject matter and the specific needs of the students. Anantama and Romadhon (2025) highlight that tailored materials significantly enhance student engagement, learning outcomes, and inclusivity. These resources serve as the bridge between the student's current ability and the learning objective, ensuring that the content is neither too simple to cause boredom nor too difficult to cause frustration.

Resource adaptation involves the flexible use of available tools and technology to support diverse learning styles and needs. This code suggests that implementation involves a focus on pathways of progression rather than just varied activities. Effective resource adaptation requires teachers to look beyond traditional textbooks and incorporate multimedia or sensory-based tools to make content more accessible.

Resource adaptation is a response to the practical constraints and student diversity found in modern classrooms. For instance, teachers have been known to adapt materials by using specific instructional tools for DI and English-captioned videos to support language learners and students with disabilities. This proactive adjustment of resources ensures that the learning environment remains responsive to the real-time needs of the students.

The emphasis on curriculum variation and tailored materials for specialized subjects like Science and Araling Panlipunan is directly supported by the work of Langcuyan et al. (2024), who found that DI was essential for enhancing reading comprehension in Araling Panlipunan.

The role of DI in supporting gifted and talented students through curriculum adaptation is further validated by Kamarudin et al. (2022), who noted that DI allowed gifted students to engage in higher-order tasks and deepen their mathematical understanding. Renzulli (2023) also supports this by arguing that a differentiated curriculum should not only remediate gaps but also cultivate students' unique talents through enrichment.

Al-Shaboul et al. (2021) and Anantama and Romadhon (2025) both identify limited resources and insufficient preparation time as major hurdles to effective content differentiation. Baraily and Sherpa (2024) point out that traditional mindsets and heavy workloads often prevent teachers from moving away from standard, unadapted curricula.

Riyanita and Susilawati (2024) demonstrate the success of using English-captioned videos to engage special needs students, while Rosadi et al. (2024) highlight that the use of technology is a key component of teachers' conceptual understanding of DI. This collective evidence reinforces the idea that content differentiation is a multifaceted process requiring both pedagogical skill and institutional support.

It implies that for Differentiated Instruction to be successful, it must move beyond superficial activity changes to deep-level content adaptation. Teachers need to be equipped with the skills to analyze student data and modify the curriculum accordingly. Furthermore, the success of content differentiation is heavily dependent on the availability of diverse resources and the time provided for collaborative planning. Without systemic support and targeted professional development, teachers may struggle to move past traditional one-size-fits-all instruction, potentially leaving vulnerable or high-achieving students behind (Maulana et al., 2023).

Content differentiation serves as a critical bridge between diverse student needs and academic success. By utilizing curriculum variations, tailored materials, and resource adaptation, educators can create a more inclusive and engaging learning environment. While the literature confirms the positive impact of these strategies on student outcomes across various subjects, it also highlights significant implementation barriers such as time and resource shortages. Effective content differentiation requires a shift in teaching philosophy from standard delivery to a responsive, student-centered approach (Massey, 2025; Safriana et al., 2024).

Schools and educational policymakers prioritize the development of structured differentiation frameworks and provide ongoing, subject-specific professional development for teachers. Educational institutions should invest in a wider array of instructional resources including digital tools and multi-modal materials to facilitate easier content adaptation. Additionally, schools should foster a collaborative environment where teachers have designated time to plan and share differentiated strategies, ensuring that DI becomes a sustainable and integrated part of the school culture rather than an isolated effort (Meriyati et al., 2023).

Objective Differentiation. Objective differentiation is a core pillar of Differentiated Instruction (DI) that focuses on tailoring learning goals and pathways to align with the unique characteristics of every learner. By shifting away from a one-size-fits-all objective, teachers ensure that instruction is purposefully designed to accommodate learning readiness, interests, and learning profiles. This approach is characterized by active, creative, and innovative participation, particularly within inclusive settings where diversity is most prominent.

Instruction is designed to accommodate learning readiness, interests, and learning profiles (Qorib, 2024).

The process is characterized by active, creative, and innovative participation in inclusive settings (Muhib, 2025).

Teachers move through focal points of implementation to manage classrooms where special needs and regular students study together (Palieraki & Koutrouba, 2021).

The integration of student readiness and interests allows educators to set goals that are neither too easy nor too difficult, maintaining a high level of student motivation. For instance, instruction is designed to accommodate learning readiness, interests, and learning profiles to ensure that the curriculum remains accessible yet challenging for all. This ensures that flexible grouping and specific engagement techniques are utilized to foster active participation across the board.

Understanding learning profiles allows teachers to move through focal points of implementation. This is especially critical in classrooms where special needs and regular students study together, requiring the teacher to manage various achievement targets simultaneously. By focusing on pathways of progression rather than just varied activities, objective differentiation ensures that every student, regardless of their starting point, has a clear route toward mastery.

Objective differentiation are strongly supported by various studies within the repertory grids. Kamarudin et al. (2022) corroborates the importance of interest-based and readiness-based goals, noting that DI allows gifted and talented students to engage in higher-order tasks, thereby deepening their mathematical understanding. Sapan and Mede (2022) found that when objectives are differentiated, both students and teachers perceive the instruction as more effective and useful, particularly in increasing motivation and autonomy.

Renzulli (2023), emphasizes that differentiated curriculum should not only remediate gaps but also cultivate students' talents through enrichment clusters. This aligns with the theme of using interest-based goals to drive engagement. Goyibova et al. (2025) also supports this by stating that DI encourages greater student engagement and motivation by offering choices and flexible pathways, which is the essence of differentiating objectives based on learner needs.

Qorib (2024) and Riyanita and Susilawati (2024) demonstrate that differentiating objectives and materials such as using tailored worksheets and English-captioned videos ensures equitable engagement for both regular and special needs students. This validates the finding that objective differentiation serves as a vital learning solution to bridge educational gaps in diverse and moderate education settings.

The success of these differentiated objectives is often tied to the teacher's ability to use diagnostic assessments to identify student backgrounds at the outset. Dianti et al. (2025) and Ahearn (2024) both confirm that identifying student readiness through assessment is a prerequisite for effective differentiation across content, process, and product. This multi-study consensus reinforces that objective differentiation is not merely about changing activities, but about fundamentally aligning the purpose of the lesson with the student's current state of learning.

It implies that for differentiated instruction to be successful, teachers must move beyond a standardized curriculum and embrace a flexible mindset toward learning goals. When objectives are differentiated based on readiness and interest, it reduces student frustration and increases academic self-efficacy. This requires a significant shift in pedagogical practice, implying a need for teachers to be proficient in analyzing student data and diagnostic assessments to set appropriate individual targets. Differentiation risks becoming a series of disconnected activities rather than a cohesive pathway for student growth (Dianti et al., 2025; Roberts & Inman, 2023).

Objective differentiation is an essential strategy for managing the complexities of a modern, inclusive classroom. By aligning instruction with student readiness, interests, and profiles, educators can foster a more inclusive and engaging environment that accommodates both gifted learners and those with special needs. The evidence suggests that while this approach significantly improves student satisfaction and performance, it is highly dependent on the teacher's competence in responsive planning and the use of formative data to guide the instructional process (Anantama & Romadhon, 2025; Pozas et al., 2023).

Educational institutions and policymakers prioritize targeted professional development and structured mentorship programs that specifically focus on the design of tiered tasks and interest-based learning paths. Schools should also provide teachers with collaborative planning time and tailored instructional resources to alleviate the heavy workload associated with creating differentiated objectives. Furthermore, integrating differentiation principles into teacher evaluation frameworks and initial teacher training would ensure that these practices are implemented with greater fidelity and consistency across various subject areas (Gheysens et al., 2023; Kahmann et al., 2022; Massey, 2025).

Assessment Differentiation. Assessment differentiation is a cornerstone of Differentiated Instruction (DI), serving as the mechanism through which teachers identify, monitor, and respond to the diverse needs of their students. By moving away from a one-size-fits-all evaluation model, educators can ensure that assessments accurately reflect

student understanding rather than their ability to navigate a standardized format. This sub-theme highlights that effective DI is not merely about changing the content taught, but fundamentally about utilizing specialized tools to overcome learning barriers and enhance inclusivity in primary and inclusive education settings.

The use of formative assessments is a critical strategy to enhance student engagement and inclusivity (Dianti et al. 2025).

Differentiated interventions have been shown to improve the quality of student assessments in primary education (Anantama and Romadhon, 2025).

Effective DI requires the proper utilization of assessment tools to identify and overcome barriers to learning (Ahearn, 2024).

The use of diagnostic tools and background checks is the essential first step in the differentiation process, as these tools are used at the outset to identify student backgrounds and diverse needs. Educators rely on these initial evaluations to gain a comprehensive understanding of a student's starting point, which then informs the entire instructional design. This proactive approach ensures that the teacher is not guessing at student needs but is instead making data-driven decisions to support every learner from the first day of instruction.

The proper utilization of assessment tools is required to identify and overcome specific barriers to learning that might otherwise go unnoticed. For example, in inclusive settings, these diagnostic assessments allow teachers to distinguish between a lack of content knowledge and a barrier related to a specific disability or learning gap. By conducting these thorough background checks, teachers can create a roadmap for differentiation that is both targeted and effective, ensuring that no student is left behind due to unidentified challenges.

Formative Assessment serves as a continuous, critical strategy to enhance student engagement and inclusivity throughout the learning process. Unlike summative tests that occur at the end of a unit, formative assessments provide real-time data that allows teachers to pivot their instruction as needed. This ongoing feedback loop is vital for maintaining an inclusive environment where students feel their individual progress is being monitored and supported.

Differentiated interventions rooted in formative practices have been shown to significantly improve the overall quality of student assessments in primary education. By integrating these assessments into daily activities, teachers can ensure that the focal points of implementation are met, managing classrooms where special needs and regular students study together effectively. This approach transforms assessment from a high-stakes event into a supportive tool for active, creative, and innovative participation.

Ahearn (2024) emphasizes that while teachers often feel unprepared to implement DI, providing guidance on effective based-strategies such as structured assessment is key to overcoming implementation barriers.

Anantama and Romadhon (2025) further supports the critical role of formative assessment in enhancing student engagement and learning outcomes. Their review highlights that tailored materials and formative tools are what allow DI to successfully address diverse student needs across multiple subjects. Rini et al. (2023), found that English teachers utilized formative assessments specifically to activate prior knowledge and manage the challenges of diverse student abilities.

The importance of diagnostic assessment is validated by the work of Dianti et al., (2025), who noted that teachers used these assessments specifically to identify student backgrounds before applying differentiation across content and process. Roberts and Inman (2023) also corroborate this by stating that DI depends entirely on understanding student needs through data, emphasizing that systematic planning and reflective practice are essential for data-informed differentiation.

The impact of these differentiated assessments on student success is seen in the action research of Palieraki and Koutrouba (2021), where specific techniques like thumb it up cards improved the quality of student participation

and assessment outcomes. This confirms the thematic assertion that differentiated interventions lead to better quality assessments in primary education, particularly when those assessments are flexible and responsive to student readiness.

It implies that differentiated instruction cannot exist without a robust, multi-tiered assessment framework. Teachers must be equipped with both the tools and the time to conduct diagnostic and formative evaluations if they are to successfully move away from traditional, rigid teaching methods. Without institutional support for these assessment practices, DI remains a fuzzy concept that is difficult to implement with fidelity, potentially leading to teacher stress and inconsistent student outcomes (Eikland & Ohna, 2022; Pozas et al., 2023).

Assessment differentiation comprising diagnostic tools, background checks, and formative assessments is the engine that drives inclusive and effective education. The evidence across multiple studies indicates that when teachers accurately identify student needs through data and provide ongoing feedback, student engagement and achievement significantly improve. While challenges like time constraints and resource limitations persist, the systematic application of differentiated assessment remains a proven solution for addressing student diversity (Dianti et al., 2025; Anantama & Romadhon, 2025).

Educational institutions prioritize professional development specifically focused on assessment literacy for Differentiated Instruction. Schools should move beyond general DI theories and provide teachers with practical training on how to design tiered assessment tasks and use digital tools for real-time formative feedback. Additionally, curriculum materials should be designed with built-in diagnostic and formative options to reduce the preparation burden on teachers and ensure the sustainable implementation of DI practices (Rosadi et al., 2024; Sulistianingrum et al., 2023; Somantri et al., 2024).

Learning Environment Differentiation. The differentiation of the learning environment is a foundational pillar of Differentiated Instruction (DI), focusing on the physical and psychological conditions that foster academic success. A primary element of this sub-theme is the creation of inclusive settings, where DI acts as a critical solution for managing student diversity within moderate and inclusive education frameworks. By adapting the environment to be more responsive, teachers can effectively bridge educational gaps, ensuring that learners from various backgrounds and ability levels feel valued and capable of achieving their goals. This approach is particularly transformative in schools where special needs and regular students study together, as it shifts the focus from a one-size-fits-all classroom to a space designed for active, creative, and innovative participation.

DI creates a supportive environment that builds better teacher-student relationships and increases interaction (Mirawati et al., 2022).

It serves as a solution in inclusive and moderate education by supporting student diversity (Suwastini et al., 2021).

The success of the environment often depends on solid support from school management and the specific educational milieu of the country (Maulana et al., 2023)

The effectiveness of an inclusive setting is heavily reliant on the specific educational milieu and the broader school context. The success of environmental differentiation depends on solid support from school management and a curriculum design that embeds inclusivity as a core value. Managing environmental factors such as class size and the distribution of resources is essential to minimize perceived inequity among students. By intentionally structuring the classroom environment, educators move beyond simply offering different activities and instead provide a stable focal point for implementation that supports the diverse requirements of the 21st-century learner.

Teacher-student relations serve as a vital code within the learning environment, as DI inherently creates a supportive atmosphere that builds stronger interpersonal bonds. When teachers differentiate instruction, they demonstrate a deep understanding of individual student readiness and interest, which in turn increases student interaction and participation. This personalized attention helps to foster a sense of belonging, motivating students to engage more deeply with the content because they feel their specific learning profiles are recognized and respected by their instructor.

These enhanced relationships are not merely a by product but a necessity for the successful delivery of DI. The literature suggests that the interplay between teacher-student dynamics and instructional strategies is what ultimately improves learning achievement and motivation. In environments where teachers act as facilitators of progression rather than just lecturers, students are more likely to take risks and persist through challenges. Consequently, the learning environment becomes a collaborative space where the teacher's responsiveness to student needs directly translates into a more harmonious and productive classroom culture.

Institutional support is the final critical code, representing the systemic backing required to sustain differentiated practices. The findings highlight that the success of the learning environment often hinges on the dosage and fidelity of teaching models, which can only be maintained through consistent school-level management. Without adequate institutional support, teachers may struggle to manage the logistical demands of DI, such as resource allocation and time management. Thus, the school environment must be one that encourages professional growth and provides the necessary infrastructure to allow differentiation to flourish.

Institutional support extends to the provision of tailored instructional resources and the implementation of supportive policies that recognize the complexity of teaching in diverse classrooms. Effective DI is not an isolated teacher effort but a school-wide commitment to addressing student diversity through structured frameworks. When the institution prioritizes a supportive milieu, it empowers teachers to overcome barriers related to classroom management and resource scarcity, ultimately leading to a more equitable and effective educational experience for all students.

Differentiated instruction creates a supportive environment that builds better teacher-student relationships is strongly corroborated by the work of Mirawati et al. (2023), who noted that DI motivates low-achieving students and increases interaction. Sapan and Mede (2022) found that both students and teachers perceived DI as effective and useful, reinforcing the idea that a positive classroom environment enhances engagement. These studies collectively suggest that when the environment is adapted to student needs, it leads to increased student satisfaction and improved academic performance.

Al-Shaboul et al. (2021) and Ahmed (2022) both emphasize that while teachers are willing to adopt DI, they are often hindered by practical realities and require greater institutional flexibility and targeted professional development. Gheysens et al. (2023), who argued that inadequate training and policy pressure to standardize instruction limit the scope of differentiation, necessitating structured mentorship programs.

The challenges of managing resources and class size to ensure equity are echoed by Silmi et al. (2025) and Kusriani et al. (2025), who identified time management, limited human resources, and perceived inequity as major hurdles. Baraily and Sherpa (2024), who noted that traditional mindsets and heavy workloads often prevent teachers from moving away from lecture-based methods. Safriana et al. (2024) pointed out that inadequate time allocation and teacher readiness remain primary obstacles in junior high settings, further highlighting the need for systemic change.

Angreni et al. (2026) and Riyanita and Susilawati (2024), who stress the need for tailored materials and English-captioned videos to ensure equitable engagement. Qorib (2024) further supports this by stating that DI can bridge educational gaps in diverse classrooms, especially when embedded in teacher professional development. These studies reinforce the conclusion that the learning environment must be intentionally designed to accommodate the unique characteristics of every learner to achieve true educational equity.

Differentiated Instruction cannot be viewed solely as a pedagogical technique; it is an environmental and systemic shift. For DI to be successful, schools must transition away from standardized, one-size-fits-all environments toward flexible, resource-rich settings that prioritize student-centered learning. This requires a significant investment in teacher professional development and a rethinking of classroom management strategies to ensure that the physical and social environment supports, rather than hinders, the implementation of differentiated content and processes (Massey, 2025; Angreni et al., 2026).

Differentiating the learning environment is essential for fostering inclusivity and enhancing student achievement. While DI offers a powerful solution for addressing student diversity and improving teacher-student relations, its effectiveness is often compromised by systemic barriers such as limited resources, inadequate time, and a lack of institutional support. Ultimately, the successful implementation of DI depends on a harmonious alignment between teacher competence, supportive school policies, and a classroom environment that values the unique learning profile of every student (Rosadi et al., 2024).

School administrators and policymakers prioritize the creation of structured DI frameworks that include collaborative planning time and targeted professional coaching for teachers. Schools should invest in subject-specific DI materials and technology to help teachers manage diverse student needs more efficiently. Furthermore, teacher education programs should be updated to include comprehensive modules on learning style assessments and environment-based differentiation strategies to ensure that future educators are fully prepared for the complexities of the modern, inclusive classroom (Sulistianingrum et al., 2023; Scarparolo & Subban, 2021; Kusrini et al., 2025)

Effects of Differentiated Instruction in the Teaching and Learning Process

The effectiveness of differentiated instruction (DI) is evident in both the teaching and learning processes. In the teaching process, two positive effects were identified: (1) enhanced instructional responsiveness and (2) increased teacher competence and professional growth. Meanwhile, in the learning process, three key effects were observed, (1) Improved academic achievement and performance, (2) Increased student engagement and motivation, and (3) Promotion of inclusive and equitable learning.

Enhanced Instructional Responsive: Enhanced instructional responsiveness refers to the teacher's improved ability to plan, adapt, and implement instruction based on students' needs, interests, and performance data. Under this theme, four major codes were identified: responsive planning, alignment of content, process, and product, data-driven instruction, and use of tiered activities.

Systematic planning and reflective practice are essential for implementing differentiated instruction across disciplines (Roberts & Inman, 2023).

Teachers utilized group-based learning, multimedia, and formative assessment to activate prior knowledge (Rini et al., 2023).

Teachers use student data to inform differentiation strategies (Riyanita & Susilawati, 2024).

Roberts and Inman (2023), teachers emphasized the importance of understanding learner needs before designing instruction. This planning process allows teachers to anticipate variability in readiness levels and to prepare flexible learning pathways. Such responsiveness enhances instructional quality because lessons are not delivered in a one-size-fits-all manner but are intentionally structured to address diversity.

Closely connected to responsive planning is the alignment of content, process, and product. The studies show that differentiation becomes effective when these three elements are intentionally harmonized. For instance, teachers implemented group-based learning, multimedia resources, and formative assessment to activate prior knowledge and facilitate access to content. In inclusive English classrooms, tailored worksheets and English-captioned videos were used to ensure equitable engagement for both regular and special needs students. Such alignment ensures that instructional strategies, materials, and outputs are coherently structured around learner differences, thereby increasing instructional responsiveness.

Data-driven instruction further strengthens this responsiveness. Teachers reported using student data to inform differentiation strategies, allowing them to adjust tasks according to learners' progress and needs. When assessment findings guide grouping, pacing, and task complexity, instruction becomes dynamic rather than static. This responsiveness is not reactive but proactive, as teachers continuously interpret evidence of learning to refine

their strategies. Differentiation leads to more targeted support and reduces the mismatch between instruction and learner capability.

The use of tiered activities also contributes to enhanced responsiveness. By designing tasks at varying levels of complexity, teachers can accommodate diverse readiness levels within the same classroom. Studies highlight that tiered tasks enable students to engage with essential concepts at appropriate levels of challenge. In this way, differentiated instruction allows teachers to maintain common learning goals while modifying pathways to reach them. The structured variation in tasks ensures that all students are appropriately challenged, thereby strengthening the teacher's adaptive capacity.

Rini et al. (2023) observed that teachers used multimedia tools, group-based learning, and formative assessment to activate students' prior knowledge and respond to varied abilities. Their findings indicate that differentiation encourages teachers to shift from rigid lesson delivery to flexible instructional design. This flexibility is a key indicator of instructional responsiveness, as teachers actively modify approaches based on learner feedback and classroom realities.

Rosadi et al. (2024) reported that teachers demonstrated strong conceptual understanding of differentiated instruction, particularly in conducting needs analysis and integrating technology. The study underscored that teachers who understand learner differences are better able to adjust instruction accordingly. This supports the notion that differentiated instruction cultivates a responsive mindset, enabling educators to align pedagogy with learner diversity.

Riyanita and Susilawati (2024) highlighted the importance of tailored instructional materials, such as customized worksheets and captioned videos, in inclusive classrooms. Their work demonstrates that responsiveness is evident when teachers intentionally adapt materials to ensure equitable participation. By accommodating both regular and special needs students, differentiation fosters a classroom environment where instruction evolves in response to learner variability rather than remaining uniform.

It implies that differentiated instruction acts as a professional catalyst, transforming teachers from passive deliverers of curriculum into adaptive designers of learning experiences. By moving away from one-size-fits-all methodologies, educators develop a heightened instructional responsiveness that shifts the focus from what is being taught to how it is being received. This transition fueled by data-driven insights, tiered task design, and the intentional alignment of content, process, and product suggests that effective differentiation is not merely a set of classroom tools but a proactive pedagogical mindset. When teachers leverage multimedia and formative data to bridge the gap between learner capability and lesson complexity, they create a more equitable and inclusive environment where student variability is treated as a roadmap for instruction rather than an obstacle to it (Rini et al., 2023; Dianti et al., 2025).

Enhanced instructional responsiveness stands out as a significant effect of differentiated instruction in the teaching and learning process. Through responsive planning, alignment of content-process-product, data-informed decision-making, and tiered activities, teachers become more capable of addressing diverse learner needs. The reviewed studies consistently demonstrate that differentiation transforms instruction from standardized delivery to adaptive facilitation. Supporting literature affirms that flexibility in planning, technological integration, and tailored materials strengthens this responsiveness in diverse contexts (Riyanita & Susilawati, 2024; Rosadi et al., 2024).

Schools institutionalize structured professional development programs that emphasize practical strategies for responsive planning and data-driven differentiation, as suggested in several studies. Teacher education programs should also integrate modules on instructional alignment and tiered task design to enhance adaptive competence. Strengthening collaborative planning time and providing access to differentiated materials can further sustain responsiveness. By reinforcing these supports, educational institutions can maximize the positive effects of differentiated instruction on teaching effectiveness and student learning outcomes (Scarparolo & Subban, 2021; Maruf, 2023; Roberts & Inman, 2023).

Increased Teacher Competence and Professional Growth. The practice of differentiated instruction contributes significantly to teachers' improved pedagogical knowledge. Professional development (PD) programs focusing on DI were found to have a medium effect on teachers' knowledge, attitudes, and instructional practices. This suggests that structured training enhances teachers' understanding of how to align content, process, and product with students' readiness and interests. Similarly, teachers demonstrated a good conceptual understanding of differentiated instruction, particularly in recognizing student differences, conducting needs analysis, and integrating technology into instruction Rosadi et al. (2024). These verbatims indicate that DI encourages teachers to become more analytical and intentional in lesson planning, thereby strengthening their pedagogical competence.

Professional development programs had a medium effect on teachers' knowledge, attitudes, and practices (Kahmann et al., 2022).

Differentiated instruction can be successfully applied when teachers receive adequate support professional development (Maruf, 2023)

Teachers demonstrated good conceptual understanding of differentiated instruction (Rosadi et al., 2024)

Preparing pre-service teachers to develop strong self-efficacy beliefs for differentiated instruction (Scarparolo & Subban, 2021).

Alongside knowledge development, differentiated instruction fosters a positive shift in teacher attitudes and stronger self-efficacy beliefs. DI can be successfully applied across subject areas when teachers receive adequate support and professional development Maruf (2023). This highlights that teachers' beliefs and attitudes toward DI become more favorable when institutional and professional backing is present. Furthermore, preparing pre-service teachers to develop strong self-efficacy beliefs for differentiated instruction is essential Scarparolo and Subban (2021). When teachers feel capable of implementing differentiated strategies, they are more likely to experiment with flexible approaches, reflect on their practice, and sustain innovation in their classrooms. Together, these findings demonstrate that DI strengthens not only instructional skills but also teachers' professional confidence and growth mindset.

Teachers often experience difficulty implementing DI due to inadequate preparation and limited practical guidance Ahearn (2024). This reinforces the importance of structured orientation and ongoing mentoring in building teacher competence. When teachers lack clarity or preparation, implementation becomes inconsistent; however, targeted PD can address these gaps and enhance instructional quality.

Conceptual ambiguity surrounding differentiated instruction also affects teachers' professional development. Variations in teachers' understanding of DI result in inconsistent classroom application Eikland and Ohna (2022). Strengthening conceptual frameworks within teacher education programs ensures that educators move beyond surface-level adaptation toward intentional and research-informed differentiation. Embedding DI principles in pre-service and in-service training supports coherence between theory and practice.

Teachers' well-being and self-efficacy are influenced by how DI is supported at the institutional level. While DI promotes responsive teaching, its implementation may increase stress if adequate systems are not in place Pozas et al. (2023). Professional growth therefore requires balanced instructional demands, collaborative planning time, and administrative support. When schools provide these conditions, DI becomes a vehicle not only for student improvement but also for teacher empowerment and job satisfaction.

The successful implementation of differentiated instruction (DI) is less about individual teacher effort and more about a systemic commitment to sustainable professional ecosystems. Because DI requires a high degree of analytical intentionality, its success hinges on moving beyond one-off workshops toward structured, ongoing mentorship and institutional support that addresses both conceptual clarity and emotional self-efficacy. When schools bridge the gap between theory and practice through targeted professional development, DI transcends being a mere instructional technique; it becomes a catalyst for teacher empowerment and institutional innovation.

Conversely, without adequate collaborative time and administrative backing, the cognitive load of differentiation risks leading to burnout. Therefore, the long-term growth of both educators and students depends on embedding DI principles into the very fabric of teacher education and school culture, ensuring that pedagogical flexibility is matched by robust institutional stability (Maruf, 2023; Pozas et al., 2023).

Differentiated instruction has a meaningful effect on increasing teacher competence and professional growth. It enhances pedagogical knowledge through structured professional development, strengthens conceptual understanding and instructional skills, fosters positive attitudes toward inclusive teaching, and builds strong self-efficacy beliefs among pre-service and in-service teachers. Supporting literature further emphasizes the need for systematic preparation, clearer conceptual alignment, and institutional mechanisms that sustain teacher well-being (Kahmann et al., 2022; Pozas et al., 2023; Rosadi et al., 2024).

Schools institutionalize continuous, targeted professional development programs on differentiated instruction, integrate DI modules into teacher education curricula, and establish mentorship and collaborative planning structures. Aligning these efforts with professional standards will ensure that differentiated instruction not only improves student outcomes but also cultivates competent, confident, and reflective educators capable of sustaining inclusive and responsive teaching practices (Kahmann et al., 2022; Ahearn, 2024; Eikland & Ohna, 2022).

Improved Academic Achievement and Performance. Academic growth becomes evident when instruction is adjusted to learners' needs and abilities. Increased comprehension emerges as one of the most consistent outcomes of differentiated instruction. This suggests that aligning instructional strategies with subject demands and learner preferences enhances students' understanding of concepts. In language contexts, differentiated strategies were also shown to improve comprehension and engagement, reinforcing the role of flexible instruction in strengthening foundational knowledge.

Differentiated instruction led to increased student satisfaction and improved performance (Meriyati et al., 2023).

Differentiated instruction allowed students to engage in higher-order tasks (Kamarudin et al., 2022).

Authentic differentiation promotes academic success (Wormeli, 2023).

Meriyati et al. (2023) found that differentiated instruction practices led to increased student satisfaction and improved performance. When learners are provided with tasks suited to their readiness levels, they are more capable of mastering subject content effectively. In mathematics education, Kamarudin et al. (2022) observed that differentiated instruction enabled gifted and talented students to engage in higher-order tasks, deepening their mathematical understanding. Wormeli (2023) emphasized that authentic differentiation promotes academic success while fostering student responsibility. These findings demonstrate that differentiated instruction not only strengthens basic comprehension but also advances learners toward complex thinking and academic excellence.

Tomlinson and Jarvis (2023) highlighted that differentiation enhances both equity and excellence in education by embedding flexibility into curriculum planning. By allowing students to explore areas of interest while meeting academic standards, differentiated instruction cultivates deeper learning and sustained achievement. This perspective reinforces the idea that academic performance improves when instruction is responsive rather than rigid.

Qorib (2024) explained that differentiated instruction can bridge educational gaps and significantly facilitate student communication and comprehension. When students with varied abilities receive appropriate learning pathways, they are better positioned to achieve academic standards. Somantri et al. (2024) described differentiated instruction as essential in addressing the diversity of students' academic abilities in elementary classrooms, indicating that structured differentiation supports mastery across ability levels.

Ziernwald et al. (2022) examined differentiated instruction for high-achieving students in mixed-ability classrooms and reported that well-designed tiered tasks can promote advanced learning. Although teachers may encounter challenges in designing equitable tasks, the literature consistently associates differentiation with

improved learning outcomes when implemented effectively. These studies collectively affirm that differentiated instruction fosters both foundational comprehension and advanced cognitive development.

It implies that moving away from a one-size-fits-all model is no longer just an instructional preference, but a pedagogical necessity for fostering subject mastery and equity. By aligning tasks with student readiness and learning modalities particularly in complex fields like Science and Mathematics educators can effectively bridge achievement gaps and transition students from basic comprehension to higher-order cognitive processing. The core implication for stakeholders is that academic excellence is best achieved not through rigid standardization, but through a flexible, responsive curriculum that empowers diverse learners to meet high standards via individualized pathways. Consequently, the successful implementation of these strategies shifts the classroom dynamic from passive reception to active, sustained engagement, ultimately cultivating a more resilient and intellectually capable student body (Qorib, 2024; Somantri et al., 2024; Tomlinson & Jarvis, 2023).

Differentiated instruction contributes significantly to improved academic achievement and performance by increasing comprehension, enhancing subject mastery, raising overall academic performance, and promoting higher-order thinking skills. It demonstrates that learners benefit academically when instruction is tailored to their readiness and learning profiles. It further supports the view that flexibility in curriculum design and instructional delivery strengthens both equity and excellence in education (Kamarudin et al., 2022; Wormeli, 2023; Somantri et al., 2024; Tomlinson & Jarvis, 2023).

Schools invest in sustained professional development and subject-specific training to ensure teachers can design effective tiered tasks and higher-order activities. Embedding differentiated strategies into curriculum frameworks and teacher education programs will enhance fidelity of implementation and maximize academic gains, as suggested across the reviewed studies. Through systematic support and responsive planning, differentiated instruction can continue to serve as a powerful approach for improving student achievement in diverse educational settings (Ziernwald et al., 2022; Qorib, 2024).

Increased Student Engagement and Motivation. Differentiated instruction promotes active participation, student choice, increased motivation, and learner autonomy. Studies show that when teachers provide varied tasks and flexible pathways, students become more involved in classroom activities. For instance, Goyibova et al. (2025) explained that differentiated instruction encourages greater student engagement and motivation by offering choices and flexible learning options. This suggests that giving learners opportunities to select tasks aligned with their interests increases ownership of learning. Suwatini et al. (2021) found that differentiated instruction strategies improved student comprehension and engagement in language learning, demonstrating that varied instructional methods can make lessons more interactive and meaningful.

Differentiated instruction encourages greater student engagement and motivation by offering choices (Goyibova et al., 2025).

Differentiated instruction strategies improved student comprehension and engagement in language learning (Suwatini et al., 2021).

Both students and teachers perceived differentiated instruction to be effective and useful (Sapan & Mede, 2022).

Differentiated instruction significantly facilitate student communication and engagement (Qorib, 2024).

Differentiated instruction enhances motivation and autonomy by allowing students to communicate and participate more confidently. Sapan and Mede (2022) reported that both students and teachers perceived differentiated instruction as effective and useful in English classrooms, particularly in improving motivation and learner independence. In addition, Qorib (2024) emphasized that differentiated instruction significantly facilitates student communication and engagement in inclusive settings. These findings indicate that when learners feel their needs are recognized and supported, they are more motivated to participate actively in the learning process.

Tomlinson and Jarvis (2023) highlighted that differentiation enhances both equity and excellence by allowing students to explore areas of personal interest while meeting academic standards. This flexibility increases intrinsic motivation because learners see the relevance of lessons to their own goals and strengths.

Wormeli (2023) explained that authentic differentiation promotes not only academic success but also student responsibility. When students are given meaningful choices and formative feedback, they become more accountable for their learning. This sense of responsibility strengthens motivation and encourages sustained engagement in classroom tasks.

Meriyati et al. (2023) found that differentiated instruction practices led to increased student satisfaction and improved performance. Higher satisfaction reflects stronger engagement, as students are more likely to invest effort when instruction matches their readiness and interests. Together, these studies affirm that differentiated instruction creates a supportive learning environment that nurtures motivation and active participation.

It implies that when educators intentionally align instructional delivery with individual readiness, interests, and learning profiles, they do more than just improve grades; they fundamentally alter the student's psychological relationship with school. By embedding choice and autonomy into the curriculum, teachers effectively transfer the ownership of learning to the students themselves. This shift fosters a classroom environment where learners are no longer passive recipients of information but are instead active, accountable participants who see their unique identities reflected in their academic tasks. Consequently, the widespread adoption of differentiated instruction implies that long-term academic resilience and intrinsic motivation are best cultivated through equity-driven practices that validate student diversity as an asset rather than a challenge (Meriyati et al., 2023; Goyibova et al., 2025).

Differentiated instruction positively affects the teaching and learning process by increasing student engagement and motivation. Through active participation, student choice, and learner autonomy, students become more involved and responsible for their learning. Goyibova et al. (2025), Sapan and Mede (2022), and Qorib (2024), demonstrates that flexible instructional strategies foster communication, comprehension, and enthusiasm in diverse classrooms. Supporting literature from Tomlinson and Jarvis (2023) and Wormeli (2023), further confirms that differentiation strengthens both motivation and academic responsibility.

Schools provide continuous professional development to help teachers design choice-based and student-centered activities that promote engagement. Institutional support, guided by research such as Meriyati et al. (2023) should focus on structured differentiation frameworks and regular feedback systems to sustain motivation and participation among learners. By embedding differentiated instruction into everyday classroom practice, educators can create a more engaging, inclusive, and motivating learning environment (Sapan & Mede, 2022).

Promotion of Inclusive and Equitable Learning. Differentiated instruction strengthens inclusive practice by deliberately accommodating diverse learner needs. One key finding emphasizes that DI can bridge educational gaps in diverse classrooms. This highlights how instruction tailored to readiness levels, interests, and learning profiles reduces disparities in achievement. In inclusive and moderate education contexts, Qorib (2024) further explains that DI functions as a practical learning solution that addresses diversity rather than treating differences as barriers. Through structured variation in content, process, and product, learners who might otherwise fall behind are provided equitable opportunities to meet learning standards.

Differentiated instruction can bridge educational gaps in diverse classrooms (Qorib, 2024).

Differentiated instruction is particularly useful in multigrade settings (Shareefa, 2021).

Recognizing students' sensory preferences enhances effectiveness (Sulistianingrum et al., 2023).

Differentiated instruction supports diverse learner needs in general education settings (Goyibova et al., 2025).

Shareefa (2021) notes that DI is particularly useful in multigrade settings, where students of different grade levels share the same classroom environment. Sulistianingrum et al. (2023) underscore that recognizing students' sensory preferences enhances the effectiveness of differentiation, demonstrating that attention to learning styles increases accessibility. In inclusive primary settings, teachers used tailored worksheets and English-captioned videos to ensure equitable engagement among regular and special needs learners. These strategies illustrate that DI does not merely adjust difficulty levels; it restructures instruction to create meaningful participation for all students, including those with disabilities or unique learning characteristics.

Tomlinson and Jarvis (2023) explain that responsive curriculum planning enhances both equity and excellence by embedding flexibility into instructional design. Their work emphasizes that equitable education is not about lowering standards but about providing varied pathways through which students can reach high expectations. This perspective aligns with the idea that DI bridges achievement gaps by ensuring that instruction is responsive rather than uniform.

Goyibova et al. (2025) describe differentiation as an approach that supports diverse learner needs in general education settings and promotes engagement through flexible pathways. Their conceptual analysis reinforces that inclusion becomes authentic when teachers intentionally design lessons that allow student choice and adaptation. The recognition of diversity literacy in inclusive education, as discussed by Qorib (2024), further strengthens this claim by showing that DI facilitates communication and comprehension among students from varied cultural and academic backgrounds.

Somantri et al. (2024) describe DI as essential in basic education for addressing diverse academic abilities, while Riyanita and Susilawati (2024) demonstrate how tailored materials promote equitable participation in inclusive English classrooms. These studies collectively affirm that when teachers adapt instructional materials, provide scaffolded support, and create multiple learning options, students who traditionally experience marginalization are more fully integrated into classroom learning processes.

It implies that differentiated instruction (DI) shifts the pedagogical paradigm from a one-size-fits-all model to a dynamic, equity-based framework essential for modern, diverse classrooms. By validating that DI successfully bridges achievement gaps in multigrade, inclusive, and general education settings, it becomes clear that academic excellence and inclusivity are not mutually exclusive but are achieved through intentional flexibility in content and delivery. For educators and policymakers, this suggests that fostering diversity literacy and providing scaffolded, multi-modal pathways—such as sensory-aligned materials and student-choice models—are no longer merely optional strategies but are foundational requirements for ensuring that marginalized learners or those with unique learning profiles achieve meaningful participation. Ultimately, the systematic implementation of DI transforms the classroom into a space where difference is treated as a pedagogical asset rather than an instructional barrier, necessitating ongoing professional development in responsive curriculum design (Riyanita & Susilawati, 2024; Qorib, 2024).

Differentiated instruction positively affects the teaching and learning process by promoting inclusive and equitable participation across diverse classroom contexts. It accommodates varied learner needs, supports special education integration, offers flexible pathways, and narrows achievement gaps through responsive instructional strategies. The integration of flexible curriculum planning Tomlinson and Jarvis (2023), diversity literacy Qorib (2024), and contextual adaptation in multigrade and inclusive settings Shareefa (2021) and Riyanita and Susilawati (2024) demonstrates that equitable education becomes attainable when differentiation is systematically embedded in classroom practice.

Differentiation modules in teacher education programs, strengthening professional development focused on inclusive pedagogy, and designing curriculum materials with built-in differentiation options. Schools may also institutionalize support systems that encourage collaborative planning and resource sharing to ensure consistent and high-quality implementation. When supported by structured training and policy alignment, differentiated instruction can continue to advance inclusive and equitable learning outcomes across varied educational settings (Somantri et al., 2024; Goyibova et al., 2025).

Common Challenges Encountered by Teachers when implementing Differentiated Instruction

The challenges encountered by teachers in implementing differentiated instruction (DI) are evident. The sub-themes include: (1) inadequate professional preparation, (2) time and workload pressures, (3) complexity of learner diversity, (4) conceptual misunderstandings of DI, and (5) insufficient institutional support.

Inadequate Professional Preparation. Inadequate professional preparation emerges through several interconnected codes: unpreparedness, lack of pedagogical knowledge, limited DI skills, low self-efficacy, and constraints in pre-service training. Teachers frequently express difficulty in implementing differentiated instruction because they feel unprepared for the complexity it demands Ahearn (2024). This sense of unpreparedness is not merely emotional but rooted in insufficient exposure to concrete differentiation strategies during teacher education. Similarly, teacher readiness, limitations, and inadequate time allocation further complicate effective classroom application Safriana et al. (2024).

Difficulty in implementing differentiated instruction because they feel unprepared (Ahearn, 2024).

Teacher readiness, limitations, and inadequate time allocation (Safriana et al., 2024).

Limited understanding and research on self-efficacy beliefs of pre-service teachers for differentiated instruction (Scarpalo & Subban, 2021).

Constraints such as inadequate pre-service training limited the scope of differentiation (Gheysens et al., 2023).

Limited understanding of self-efficacy beliefs among pre-service teachers also contributes to this challenge Scarparolo and Subban (2021). When teachers lack confidence in their ability to differentiate instruction, they are less likely to attempt complex adaptations for diverse learners. Furthermore, constraints such as inadequate pre-service training and policy pressures to standardize instruction limit the scope of differentiation in inclusive classrooms Gheysens et al. (2023). Even when educators value inclusive principles, they often lack the practical skills and structured mentorship needed to translate these values into differentiated practice. Thus, inadequate preparation manifests both as limited knowledge and as reduced professional confidence, significantly affecting implementation.

Kahmann et al. (2022) demonstrates that professional development programs produce a medium effect on teachers' knowledge, attitudes, and practices, highlighting that structured training improves readiness and instructional quality. This suggests that when teachers receive systematic and sustained professional learning, their capacity to differentiate increases significantly.

Maruf (2023) emphasizes the interplay between teachers' beliefs, attitudes, and DI implementation, noting that adequate support and professional development enable teachers to apply DI effectively across subject areas. This aligns with recommendations that teacher education programs integrate modules on differentiation theory and classroom application. The integration of structured DI content during initial teacher training strengthens both conceptual clarity and practical skills.

Qorib (2024) argues that embedding DI into teacher training programs enhances cultural responsiveness and inclusive pedagogy. Al-Shaboul et al. (2021) stress that targeted professional development and systemic school support are necessary to broaden DI application. These studies collectively affirm that insufficient preparation is not an isolated issue but a structural concern within teacher education and institutional frameworks.

Differentiated Instruction (DI) and successfully executing it is a structural failure rather than an individual one. Because teacher unpreparedness is rooted in insufficient pre-service training and a lack of practical mentorship, the primary implication is the need for a curriculum overhaul in teacher education that moves beyond theoretical definitions to clinical practice. If institutions do not integrate systematic, sustained professional development and concrete DI modules, educators will continue to experience low self-efficacy, leading to a safety-first approach that favors standardization over inclusivity. Ultimately, for DI to become a classroom reality, educational

frameworks must treat professional preparation as a continuous pipeline—bridging the divide between initial training and on-the-job support—to ensure that teacher confidence matches the complex demands of diverse learner populations (Maruf, 2023; Qorib, 2024; Safriana et al., 2024).

Inadequate professional preparation remains a primary challenge encountered by teachers in implementing differentiated instruction. Teachers' unpreparedness, limited pedagogical knowledge, restricted DI skills, and low self-efficacy collectively hinder effective classroom differentiation (Kahmann et al., 2022; Maruf, 2023; Qorib, 2024; Al-Shaboul et al., 2021).

Teacher education institutions should embed comprehensive DI modules within pre-service curricula, emphasizing both theoretical foundations and practical applications. Schools should also establish ongoing, targeted professional development programs and structured mentorship systems to strengthen teachers' self-efficacy and instructional skills. Institutional policies must align evaluation frameworks and instructional standards with differentiation principles to ensure sustained and meaningful implementation. Strengthening professional preparation at both pre-service and in-service levels is essential to overcoming the barriers that limit differentiated instruction in diverse classrooms (Ahearn, 2024; Safriana et al., 2024; Scarparolo & Subban, 2021; Gheysens et al., 2023).

Time and Workload Pressures: Time pressure significantly constrains teachers' ability to plan and execute differentiated instruction. Teachers reported entering the classroom without a lesson plan due to heavy workloads or long-standing routines that deprioritize formal planning. This situation reflects how instructional preparation is often compromised when administrative tasks, multiple subject assignments, and curricular demands accumulate. The absence of structured planning limits teachers' capacity to design tiered tasks, varied materials, and formative assessments essential for differentiation. When instructional time is consumed by routine responsibilities, differentiation becomes an added burden rather than an embedded practice.

Teachers enter the classroom without a lesson plan due to heavy workloads (Baraily & Sherpa, 2024).

Time constraints, large class sizes, and diverse student abilities (Rini et al., 2023).

Difficult to put differentiated instruction into practice (Smets et al., 2022).

Challenges faced during the implementation process (Massey, 2025).

Overloaded curriculum and heavy workload further intensify implementation challenges. Time constraints, large class sizes, and diverse student abilities were identified as barriers that complicate differentiated learning. Teachers expressed difficulty putting differentiated instruction into practice due to these combined pressures. The need to complete prescribed syllabi within limited time frames often forces educators to prioritize content coverage over instructional adaptation. As a result, differentiation may be reduced to occasional adjustments instead of a consistent pedagogical approach, reinforcing the perception that DI is impractical within demanding teaching schedules.

Baraily and Sherpa (2024), teachers admitted that heavy workloads led them to enter classrooms without lesson plans, revealing how excessive responsibilities directly affect preparedness. Rini et al. (2023) identified time constraints and large class sizes as primary barriers in English classrooms, demonstrating that even when teachers understand DI principles, contextual demands restrict sustained application. These findings suggest that workload intensity reduces opportunities for reflective planning and instructional customization.

Smets et al. (2022) also noted that teachers found it difficult to translate differentiation principles into practice. Their action research highlights that implementation requires continuous assessment and responsive adjustment—processes that demand additional preparation time. In the same vein, Massey (2025) identified challenges faced during the implementation process and emphasized teachers' need for structured support and collaborative planning. These studies indicate that differentiation is not inherently ineffective; rather, insufficient time allocation and overwhelming responsibilities undermine its sustainability.

Safriana et al. (2024), who identified inadequate time allocation and teacher limitations as major obstacles. Pozas et al. (2023) extended this discussion by linking instructional demands with teacher stress and job satisfaction, recommending institutional policies that balance instructional expectations with teacher well-being. Together, these studies affirm that time and workload pressures are systemic issues requiring organizational, not merely individual, solutions.

The central implication of these findings is that the failure to implement differentiated instruction (DI) is not a result of teacher incompetence or a lack of pedagogical understanding, but rather a systemic failure of school infrastructure and workload management. When administrative burdens and overloaded curricula force educators to prioritize content coverage over individualized learning, DI shifts from a foundational teaching philosophy to an exhausting add-on that triggers stress and burnout. This suggests that as long as educational institutions treat differentiation as an individual teacher's responsibility without providing the necessary structural support, such as reduced class sizes, collaborative planning periods, and streamlined administrative tasks it will remain a theoretical ideal rather than a sustainable classroom reality. Consequently, true instructional equity can only be achieved through organizational policy changes that value teacher well-being and reflective preparation time as much as they value syllabus completion (Pozas et al., 2023; Baraily & Sherpa, 2024).

Time and workload pressures remain central challenges in implementing differentiated instruction. Teachers face limited preparation time, overloaded curricula, and extensive administrative responsibilities that restrict structured planning and consistent differentiation. Multiple studies confirm that while educators recognize the value of DI, contextual demands make sustained implementation difficult. These converging findings highlight that the challenge lies not in teachers' willingness but in the structural constraints shaping their professional environment (Safriana et al., 2024; Massey, 2025).

Schools should establish protected collaborative planning time, streamline curricular expectations, and provide targeted professional development focused on efficient differentiation strategies. Safriana et al. (2024) recommend better time allocation and increased training, while Massey (2025) suggests ongoing coaching and support systems. Pozas et al. (2023) further advocate institutional policies that balance instructional demands with teacher well-being. Implementing these recommendations can reduce workload strain and create conditions where differentiated instruction becomes manageable, sustainable, and responsive to diverse learners.

Complexity of Learner Diversity. The presence of mixed-ability classrooms intensifies the demands placed on teachers to recognize and respond to a broad spectrum of learner needs. In the action research conducted by Smets et al. (2022), teachers struggled in assessing students' differences, indicating that identifying readiness levels, learning profiles, and cognitive traits requires more than general observation. As cited in the thematic table, educators found it difficult to translate awareness of diversity into practical instructional adjustments Smets et al. (2022). Ziernwald et al. (2022) reported that teachers experienced difficulty in designing tiered tasks and maintaining equity in mixed-ability classrooms, especially when attempting to challenge high-achieving students without neglecting others Ziernwald et al. (2022).

Teachers struggled in assessing students' differences (Smets et al., 2022).

Teachers reported difficulty in designing tiered tasks and maintaining equity (Ziernwald et al., 2022).

Students with disabilities are often demotivated because curricula are not adopted (Baraily & Sherpa, 2024).

Inclusive primary school is challenging because students with special needs have disabilities that hinder learning (Riyanita & Susilawati, 2024).

Baraily and Sherpa (2024) emphasized that students with disabilities, such as visual impairments, are often demotivated or fall behind because standard curricula and practical assignments are not adapted to their needs Baraily and Sherpa (2024). In the context of inclusive primary education, Riyanita and Susilawati (2024) noted that students with special needs face learning barriers that hinder their academic and daily functioning, making instructional adaptation particularly demanding Riyanita and Susilawati (2024). Teachers are required to

differentiate while ensuring that all learners—regular and special needs—remain meaningfully engaged, which heightens the perceived complexity of DI implementation.

Ziernwald et al. (2022) concluded that promoting high-achieving students in mixed-ability settings requires sophisticated tiered task design and explicit differentiation strategies Ziernwald et al. (2022). Their findings underscore that without structured preparation, teachers may struggle to provide enrichment opportunities while simultaneously supporting learners who require remediation. This tension between equity and excellence complicates instructional planning and execution.

According to Riyanita and Susilawati (2024) illustrated how tailored worksheets and captioned videos were used to ensure equitable engagement among both regular and special needs students. Their study demonstrates that effective DI in inclusive classrooms requires deliberate material adaptation and thoughtful resource selection. Without these adjustments, students with disabilities risk marginalization. Baraily and Sherpa (2024) stressed that unchanged traditional teaching methods contribute to inequitable learning experiences for vulnerable learners. The persistence of lecture-dominated approaches limits responsiveness to diverse academic and functional needs.

Smets et al. (2022) explained that teachers' responsivity is influenced not only by cognitive traits but also by other individual differences, suggesting that diversity extends beyond academic ability to include socio-emotional and motivational dimensions. This multidimensional nature of learner variability increases the cognitive load on teachers, who must consider intersecting factors when planning differentiated lessons. The literature therefore consistently portrays learner diversity as dynamic and layered, requiring adaptive expertise rather than routine instructional adjustments.

It implies that learner diversity is no longer a peripheral classroom variable but the core challenge of modern pedagogy, necessitating a fundamental shift from standardized instruction to adaptive expertise. Because student variability is multidimensional—encompassing cognitive, socio-emotional, and physical needs—general observation is insufficient; teachers require specialized training in diagnostic assessment and the sophisticated design of tiered tasks. The persistent struggle to balance equity and excellence suggests that without systematic institutional support and the provision of adapted resources such as tailored worksheets and assistive technology, the gap between inclusive ideals and classroom reality will widen. Ultimately, the burden of differentiation cannot rest solely on the teacher's cognitive load; it requires a curriculum that is inherently flexible and a shift in teaching culture from traditional lecture-dominated methods to a responsive, resource-rich environment that proactively prevents the marginalization of vulnerable learners (Smets et al., 2022; Riyanita & Susilawati, 2024).

Learner diversity presents a substantial and multifaceted challenge in the implementation of differentiated instruction. Mixed-ability classrooms, inclusive education demands, assessment of student differences, and equity concerns collectively complicate instructional planning and execution. Smets et al. (2022), Ziernwald et al. (2022), Baraily and Sherpa (2024), and Riyanita and Susilawati (2024) demonstrates that teachers encounter persistent difficulty in assessing learner variability, designing equitable tiered tasks, and adapting materials for students with disabilities. These converging insights affirm that the complexity of learner diversity is a central challenge in DI implementation.

Structured professional development focused on tiered task design and inclusive strategies Ziernwald et al. (2022), deliberate adaptation of materials and multimodal resources to ensure equitable participation Riyanita and Susilawati (2024), and collaborative planning environments that move teachers away from traditional, non-adaptive instruction Baraily and Sherpa (2024). Strengthening teachers' capacity to assess multidimensional learner differences, as emphasized by Smets et al. (2022), is also critical. Through sustained training, contextualized support, and inclusive curriculum design, schools can better equip teachers to navigate the inherent complexity of learner diversity while promoting equitable and responsive instruction.

Conceptual Misunderstanding of Differentiated Instruction. Conceptual confusion emerges when teachers hold varied or incomplete understandings of DI, leading to inconsistent and sometimes inappropriate application. Eikland and Ohna (2022) emphasize that conceptual ambiguity in differentiation leads to uneven practices across schools, as teachers interpret the approach differently. This ambiguity explains why some educators believe they

are implementing DI while only modifying surface-level activities. Gaitas et al. (2024) report inconsistent and inappropriate definitions and practices of DI. In such cases, DI is not grounded in systematic planning but rather in fragmented adaptations. The verbatim indicating that DI is used reactively suggests that teachers apply differentiation only when students fail to perform the same activity as peers, instead of proactively designing responsive instruction from the outset. This reactive implementation reflects a misunderstanding of DI as remediation rather than structured responsiveness.

Conceptual ambiguity often leads to inconsistent application in schools (Eikland & Ohna, 2022).

Inconsistent and inappropriate definitions and practices of differentiated instruction (Gaitas et al., 2024).

Identifies myths about differentiated instruction (Tomlinson and Imbeau, 2023).

Differentiated instruction remains underutilized (Gibbs & McKay, 2021).

Tomlinson and Imbeau (2023) identify myths surrounding DI, which distort teachers' perceptions. These myths may include the belief that DI requires completely individualized lesson plans for every learner or that it lowers academic standards. When misconceptions persist, teachers may resist or oversimplify the approach. Gibbs and McKay (2021) note that DI remains underutilized, reinforcing the idea that misunderstanding contributes to limited classroom application. When teachers lack a unified and accurate conceptual framework, implementation becomes inconsistent, selective, or avoided altogether. Thus, conceptual misunderstanding constitutes a foundational challenge that shapes how DI is interpreted, valued, and enacted in practice.

Eikland and Ohna (2022) further explains that teachers may express theoretical support for DI while simultaneously demonstrating varied interpretations of its purpose and methodology. Their work stresses the need for clearer conceptual frameworks and policy alignment to ensure fidelity in implementation. Without such clarity, differentiation becomes a loosely defined term rather than a structured pedagogical approach. This reinforces how conceptual misunderstanding contributes to inconsistency across classrooms and schools.

Gaitas et al. (2024) reveal that DI is often mobilized only when students cannot complete the same task as their classmates. This finding supports the code DI used reactively, highlighting that teachers may equate differentiation with remediation instead of inclusive planning. The authors recommend strengthening initial teacher education and professional development programs to clarify definitions and applications of DI. Such recommendations imply that conceptual gaps originate during training and persist into professional practice, thereby influencing long-term implementation challenges.

Gibbs and McKay (2021) concludes that DI remains underutilized in mainstream classrooms. Their analysis suggests that clearer guidelines and embedded DI training are necessary to enhance consistency. Tomlinson and Imbeau (2023) recommend clarifying misconceptions in professional development initiatives. Together, these studies demonstrate that conceptual misunderstanding is not an isolated issue but a recurring theme in international research. When teachers lack precise definitions and structured models, implementation becomes fragmented, reinforcing the broader problem identified in the statement of the study.

Differentiated Instruction (DI) risks becoming a performative label rather than a transformative pedagogical tool. When educators view DI through a reactive or remedial lens, they inadvertently perpetuate an us versus them classroom dynamic where differentiation is seen as a fallback for failure rather than a proactive strategy for equity. This lack of a unified framework ensures that student success remains a lottery of the draw, dependent more on an individual teacher's personal interpretation than on a consistent institutional standard. Consequently, unless professional development shifts from teaching DI as a series of fragmented tricks to establishing it as a foundational mindset of inclusive design, the gap between theoretical support and classroom reality will continue to hinder the academic growth of diverse learners (Gibbs & McKay, 2021; Gaitas et al., 2024).

Conceptual misunderstanding of differentiated instruction significantly contributes to the common challenges teachers encounter in its implementation. Ambiguity in definitions, myths surrounding the approach, and reactive

rather than proactive application weaken fidelity and consistency in practice. Related literature consistently affirms that unclear conceptualization limits effective adoption across educational contexts. When teachers do not share a unified understanding of DI, the strategy risks being underutilized, misapplied, or reduced to superficial modifications (Eikland & Ohna, 2022; Tomlinson & Imbeau, 2023).

Gaitas et al. (2024) advocate for improvements in initial teacher training, while Tomlinson and Imbeau (2023) emphasize clarifying misconceptions through targeted professional learning. Gibbs and McKay (2021) call for clearer implementation guidelines within policy and teacher education programs. These recommendations collectively suggest that resolving conceptual confusion requires systemic and sustained efforts in training, policy alignment, and institutional support. Establishing a coherent and shared understanding of differentiated instruction is therefore essential for overcoming implementation barriers and ensuring that DI fulfills its intended purpose of addressing learner diversity effectively.

Insufficient Institutional Support. Insufficient institutional support emerges as a critical challenge encompassing lack of administrative backing, limited materials and resources, poor technology access, and professional isolation among teachers. The absence of administrative support constrains teachers' ability to prioritize differentiation within already demanding instructional schedules. identifies that systematic changes in school structures must be prioritized to enable DI implementation, suggesting that structural rigidity within institutions restricts teacher autonomy and innovation. Al-Shaboul et al. (2021) reports that although teachers demonstrate willingness to adopt DI, they remain constrained by practical realities within their institutions. This highlights that the challenge is not rooted in teacher resistance but in limited organizational facilitation.

Teachers often work in isolation (Baraily & Sherpa, 2024).

Systematic changes in school structures must be prioritized (Al-Shaboul et al., 2021).

Institutional policies to balance instructional demands (Pozas et al., 2023).

Differentiated instruction in remote settings requires technical infrastructure and pedagogical training (Cardullo, 2021).

Cardullo et al. (2021) explains that teachers struggled to adapt differentiated materials during remote teaching due to unfamiliarity with digital platforms and inadequate infrastructure, underscoring the necessity of both technological tools and pedagogical training. Moreover, teacher isolation intensifies these difficulties. indicates that teachers often work in isolation, and Baraily and Sherpa (2024) confirms that many educators rely on traditional methods rather than collaborative planning. The lack of structured collaboration reduces opportunities for shared problem-solving, peer mentoring, and reflective practice elements essential for sustainable DI implementation.

Pozas et al. (2023) emphasizes that DI practices must be accompanied by support systems to mitigate teacher stress and balance instructional demands. Without administrative policies that protect planning time and promote teacher well-being, differentiation may increase workload and emotional strain rather than enhance instructional quality. This underscores the interconnectedness between institutional structures and teacher sustainability.

Gheysens et al. (2023) explains that educators often lack the resources and structured mentorship necessary to enact DI with fidelity, despite endorsing inclusive values. Their recommendation for integrating DI into teacher evaluation frameworks and establishing mentorship programs further reinforces the importance of systemic alignment. Similarly, Gibbs and McKay (2021) argues that DI remains underutilized due to inconsistent policy support and unclear implementation guidelines, suggesting that institutional clarity and leadership direction are indispensable for consistent practice.

It implies that the successful implementation of Differentiated Instruction (DI) is not merely a matter of teacher competence or willingness, but is fundamentally dependent on institutional infrastructure. When schools fail to provide administrative backing, technological resources, and structured collaboration, DI shifts from an effective

pedagogical strategy to a source of professional burnout and instructional strain. This suggests that without a systemic shift—one that moves away from structural rigidity and professional isolation toward mentorship programs and policy-protected planning time—differentiation will remain an aspirational value rather than a classroom reality. Essentially, the pedagogical gap in modern education is less about a lack of teacher heart and more about a lack of organizational scaffolding; for DI to be sustainable, leadership must treat it as a collective institutional mission rather than a solitary classroom task (Cardullo et al., 2021; Qorib, 2024).

Insufficient institutional support constitutes a significant systemic barrier in the implementation of differentiated instruction. Evidence demonstrates that teachers' challenges stem not solely from individual limitations but from organizational constraints including inadequate administrative support, limited instructional materials, weak technological infrastructure, and professional isolation (Al-Shaboul et al., 2021; Baraily & Sherpa, 2024; Cardullo et al., 2021). Studies further corroborate that without structured mentorship, policy coherence, and workload balance, DI remains inconsistently applied (Gheysens et al., 2023; Gibbs & McKay, 2021; Pozas et al., 2023).

To address these challenges, educational institutions must prioritize systemic reforms. Schools should establish collaborative planning structures, invest in updated technological and instructional resources, and implement targeted professional development aligned with institutional policies (Baraily & Sherpa, 2024; Gheysens et al., 2023). Leadership frameworks should integrate DI within teacher evaluation and support systems to ensure accountability and sustainability Gibbs and McKay (2021). Strengthening institutional infrastructure will not only alleviate teacher burden but also create an enabling environment where differentiated instruction becomes a sustained and equitable instructional practice.

Proposed Output: Effective Differentiation in Elementary Education

This How-to-Guide on differentiated instruction was developed to address the diverse learning needs of students in elementary classrooms. Traditional teaching methods often follow a one-size-fits-all approach, which may not effectively support learners with different abilities, interests, and learning styles. Therefore, this material is grounded in the concept of differentiated instruction, which promotes a flexible and student-centered approach to teaching (Aguhayon et al., 2023; Qorib, 2024). By focusing on learners' readiness, interests, and learning profiles, teachers can create more inclusive and meaningful learning experiences (Tomlinson, 2014).

Furthermore, differentiated instruction improves student engagement, motivation, and academic performance because lessons are adapted to meet individual needs (Rini et al., 2023; Meriyati et al., 2023). It also supports inclusive education by ensuring that all learners, including struggling and advanced students, are given equal opportunities to succeed (Angreni et al., 2026). However, despite its benefits, teachers often face challenges such as limited time, lack of training, and insufficient resources when implementing differentiated strategies (Ahearn, 2024; Al-Shaboul et al., 2021).

In response to these issues, this guide aims to translate research findings into practical and easy-to-follow strategies that teachers can apply in real classroom settings. It provides step-by-step procedures for differentiating content, objectives, assessment, and learning environment to support effective teaching practices. By doing so, the guide helps educators improve their instructional methods and create responsive, inclusive, and engaging classrooms that cater to the needs of all learners.

CONCLUSIONS

Based on the findings of this systematic review, several key conclusions were identified regarding the use of differentiated instruction (DI) in elementary education:

1. Differentiated instruction is used in the classroom through adjustments in content, process, assessment, and learning environment. Teachers modify materials, activities, and tasks to meet the different needs and abilities of learners. When properly planned, DI helps improve students' understanding, participation, and overall learning experience.

2. Differentiated instruction has positive effects on both teaching and learning. It improves instructional responsiveness and supports teachers' professional growth. For students, DI enhances academic performance, increases engagement and motivation, and promotes inclusive and equitable learning. It shifts teaching from a one-size-fits-all approach to a more flexible and student-centered practice.
3. Teachers face several challenges in implementing differentiated instruction. These include lack of training, limited time, heavy workload, large class sizes, and insufficient resources. Some teachers also have difficulty understanding and applying DI consistently. These challenges show that effective implementation depends not only on teachers but also on school support and system conditions.
4. Differentiated instruction (DI) represents a vital shift from traditional, rigid teaching methods toward a flexible, student-centered framework that bridges the gap between a learner's current readiness and the demands of the curriculum. By addressing content, objectives, assessment, and the learning environment—educators can move beyond a "one-size-fits-all" approach to create inclusive and meaningful learning experiences. While the model effectively enhances engagement and academic outcomes by honoring diverse learning modalities, its successful implementation depends heavily on overcoming systemic challenges such as time constraints and the need for robust institutional support.

RECOMMENDATIONS

Based on the findings, the following recommendations are suggested:

1. Schools may consider strengthening their support for differentiated instruction by providing continuous professional development, adequate instructional materials, and opportunities for collaborative planning. Establishing clear guidelines and support systems may help teachers apply DI more effectively in the classroom.
2. Teacher education programs may further enhance their training on differentiated instruction by incorporating more practical and hands-on approaches. This may help future teachers develop confidence and competence in applying DI strategies in real classroom settings.
3. School leaders may explore ways to address classroom and workload challenges by providing sufficient time for lesson planning, managing teaching loads, and ensuring access to necessary resources. Such support may enable teachers to implement DI more consistently.
4. Educators and pre-service teachers may prioritize the use of diagnostic and formative assessments to inform real-time instructional adjustments. Educators should adopt tiered strategies—such as varied reading materials and layered objectives—to ensure every student is appropriately challenged without becoming overwhelmed. Furthermore, schools should provide the necessary institutional support and resources to help teachers manage workloads, thereby allowing them to focus on fostering student autonomy and creating responsive, diverse pathways for academic success.

Limitations of the Study

This systematic review has several limitations that should be considered when interpreting the findings.

First, the study included only open-access articles, which may have limited the range of available literature. Relevant studies found in subscription-based databases were not included, which may affect the completeness of the review.

Second, the review focused only on studies published between 2021 and 2025. While this ensured that the findings are recent and relevant, it may have excluded earlier foundational studies on differentiated instruction.

Third, the study included only English-language publications, which may have resulted in the exclusion of important research conducted in other languages.

Fourth, the selection of studies was limited to those involving elementary-level learners and teachers. Therefore, the findings may not be applicable to secondary or higher education contexts.

Fifth, many of the included studies relied on self-reported data from teachers, which may introduce bias and affect the accuracy of the findings.

Finally, variations in how differentiated instruction was defined and implemented across studies made it difficult to compare findings consistently. Differences in context, sample size, and research design may also influence the generalizability of the findings.

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Adviser: **CATHRINE L. TOMAS, PhD**

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