

## The Effectiveness of Differentiated Learning in Indonesian Language Subjects at Elementary Schools

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### Abstract

The COVID-19 pandemic exacerbated learning losses in literacy, necessitating effective pedagogical interventions. This study investigated differentiated instruction effectiveness within Indonesia's Merdeka Curriculum framework for sixth-grade Indonesian language education. A qualitative multiple-case study was conducted from March to May 2025 at two Sekolah Penggerak elementary schools in Central Java, Indonesia, involving 26 students and two teachers. Data collection employed document analysis of teaching modules, semi-structured interviews, and systematic classroom observations. Analysis followed the Miles and Huberman interactive model with triangulation to ensure credibility. Both teachers achieved "Very Good" ratings in module development (score: 40/44) through continuous diagnostic assessment and iterative refinement. Implementation revealed two equally effective pedagogical models: humanistic-contextual and systematic-technological approaches. Student outcomes demonstrated dramatic improvement, with classical mastery rising from baseline rates of 40-44% to 100% across cognitive, affective, and psychomotor domains. Mean cognitive scores reached 85.6 and 84.5, while maintaining individual growth trajectories. Findings extend differentiated instruction theory by demonstrating its effective integration with post-pandemic curriculum reform. Results affirm that strategic differentiation accommodates diverse pedagogical expressions while simultaneously achieving educational equity and excellence. Persistent challenges in character education integration and heterogeneous socio-emotional development indicate areas requiring sustained intervention. Future research should investigate scalability across diverse school contexts using mixed-methods designs with standardized measures.

### INTRODUCTION

The COVID-19 pandemic has profoundly disrupted global education systems, precipitating unprecedented challenges in learning continuity and educational equity (Engzell et al., 2021; Kuhfeld et al., 2022; UNESCO, 2021). International assessments reveal substantial learning losses, with students falling behind by months or even years in foundational skills (Patrinos et al., 2022; UNICEF, 2021). In Indonesia, the educational crisis was particularly acute, prompting the government to initiate transformative policy interventions. These include the Sekolah Penggerak Programme (PSP), Guru Penggerak Programme (PGP), and the Merdeka Curriculum, all designed to transition from traditional teacher-centered paradigms toward learner-centered approaches that cultivate the Pancasila Student Profile (Ministry of Education, Culture, Research and Technology, 2021; Anggraena et al., 2022). The Merdeka Curriculum, which became mandatory for all Indonesian educational institutions in the 2024/2025 academic year through Ministerial Regulation Number 12 of 2024, represents a fundamental reconceptualization of pedagogical practice grounded in evidence-based learner-centered principles (Bremner et al., 2022; Cornelius-White, 2007; Weimer, 2013). This

curriculum emphasizes active learning, teachers as facilitators, cooperative environments, and problem-solving competencies (Zendrato & Agatha, 2023), while prioritizing foundational literacy and numeracy alongside project-based learning to develop both cognitive skills and character aligned with Pancasila values (Ariyanti & Hidayat, 2023; Darling-Hammond et al., 2020).

Within the Merdeka Curriculum structure, Indonesian Language instruction at the elementary school level occupies the largest allocation of instructional time, reflecting its foundational importance. Reading comprehension skills are particularly crucial, as they serve as the cornerstone for learning across all subject areas while simultaneously developing 21st-century competencies (Connor, 2016; Duke & Cartwright, 2021). Contemporary reading science emphasizes the complexity of comprehension as an interactive process involving word recognition, language comprehension, and cognitive strategies (National Reading Panel, 2000; Scarborough, 2001; Snow & O'Connor, 2016). The effectiveness of Indonesian Language instruction is fundamentally dependent on teacher competence (Darling-Hammond et al., 2017; Desimone, 2009), which must be continuously enhanced through evidence-based professional development, particularly in reading instruction—a critical determinant of successful Merdeka Curriculum implementation (Sims et al., 2021; Timperley et al., 2007).

Despite these policy initiatives, significant implementation challenges persist. Research indicates that learner-centered pedagogies remain constrained by entrenched teacher-centered practices, excessive reliance on textbooks, and burdensome administrative requirements (De Neve et al., 2015; Gaitas & Alves Martins, 2017; Suprayogi et al., 2017). Preliminary investigations conducted at Wonorejo Elementary School and Tepasari 01 Elementary School in Polokarto Subdistrict revealed systemic deficiencies: instruction predominantly employs classical, teacher-centered methodologies; limited innovation exists in developing supplementary teaching materials beyond prescribed textbooks; and systematic strategies to stimulate reading interest and accommodate diverse student needs are inadequate. These deficiencies manifest in alarmingly low reading comprehension outcomes, with only 44% of sixth-grade students at Wonorejo Elementary School and 40% at Tepasari 01 Elementary School demonstrating proficient comprehension skills.

These findings align with broader empirical evidence documenting the severity of literacy challenges in post-pandemic contexts. The World Bank (2022a, 2022b) reports that learning recovery in literacy remains sluggish across developing nations, with learning poverty rates rising dramatically. International assessments confirm persistent difficulties among elementary students in higher-order comprehension skills, particularly inferential reasoning and structural text analysis (Azevedo et al., 2021; Garcia, 2023; Mullis et al., 2020; OECD, 2023). These converging findings underscore a critical knowledge gap: while policy frameworks emphasize learner-centered instruction, effective pedagogical models that operationalize these principles in diverse classroom contexts remain insufficiently developed and empirically validated (Dixon et al., 2014; Prast et al., 2018).

Differentiated learning has emerged as a promising pedagogical approach to address these challenges. Grounded in recognition of individual learner variability, differentiated instruction adapts content, process, product, and learning environment to accommodate diverse student needs (Gheysens et al., 2021; Pozas et al., 2021; Roy et al., 2013; Smale-Jacobse et al., 2019; Tomlinson et al., 2003). Research demonstrates that differentiation not only enhances cognitive outcomes but also fosters intrinsic motivation, social inclusion, and academic self-concept (Muhammad et al., 2024; Subban, 2006). For literacy development specifically, responsive instructional approaches that account for individual differences are essential for cultivating complex comprehension competencies (Graham et al., 2020; Little et al., 2014; Magableh & Abdullah, 2022; Reis et al., 2011). Empirical evidence supports the efficacy of differentiated learning in Indonesian contexts (Rahmawati et al., 2023; Sofiah & Hikmawati, 2023; Wahyuni et al., 2023).

However, existing research predominantly examines differentiated learning in isolation from comprehensive curriculum reform initiatives or focuses on limited instructional contexts (Coubergs et al., 2017; Santangelo & Tomlinson, 2009; van Geel et al., 2019). A critical gap remains in understanding how differentiated instruction can be systematically designed, implemented, and

evaluated within specific national curriculum frameworks designed for post-pandemic learning recovery. This study addresses this gap by investigating differentiated learning implementation in sixth-grade Indonesian Language instruction on the empathy-themed unit "Aku Bisa Berempati" at two elementary schools implementing the Sekolah Penggerak programme. The study objectives are: (1) to describe the stages of planning and developing Indonesian language teaching modules using a differentiated learning approach; (2) to explain the implementation of Indonesian language learning using a differentiated learning approach; and (3) to evaluate learning outcomes resulting from differentiated Indonesian language instruction across cognitive, affective, and psychomotor domains.

## METHODS

This study employed a qualitative case study design to investigate the effectiveness of differentiated learning in Indonesian language instruction. Case study methodology was selected for its capacity to provide in-depth, contextualized understanding of complex educational phenomena within real-world settings (Kusumastuti & Khoiron, 2019; Yin, 2018). This approach enables comprehensive examination of how differentiated instruction operates within authentic classroom environments, capturing the nuanced interactions between pedagogical strategies, teacher practices, and student responses (Abdussamad, 2021; Stake, 1995). The multiple-case design incorporated two elementary schools, allowing for cross-case analysis to enhance the credibility and transferability of findings (Creswell & Poth, 2018).

The research was conducted from March to May 2025 at Wonorejo Elementary School and Tepisari 01 Elementary School in Polokarto Subdistrict, Central Java, Indonesia. Both schools were purposively selected based on specific criteria: implementation of the Sekolah Penggerak programme, comparable sociodemographic characteristics due to education zoning policy, and documented literacy instruction initiatives (Taufiq et al., 2023). The study focused on sixth-grade students (Phase C of the Merdeka Curriculum) studying the Indonesian language unit "Aku Bisa Berempati" (I Can Empathize). Wonorejo Elementary School contributed 16 student participants and one teacher (Teacher DN), while Tepisari 01 Elementary School contributed 10 student participants and one teacher (Teacher Y). The selection of these schools as exemplars of the Sekolah Penggerak programme provided valuable insights into best practices that could inform broader implementation across similar educational contexts.

Data collection employed methodological triangulation through three complementary instruments to ensure comprehensiveness and validity. First, document analysis utilized a structured teaching module review sheet with 11 evaluation components scored on a four-point Likert scale (4=Very Good, 3=Good, 2=Fair, 1=Poor), assessing module identity, initial competence, Pancasila student profile integration, facilities and infrastructure, student targets, learning objectives, meaningful understanding, provocative questions, learning activities, assessment strategies, and attachments. Second, semi-structured interviews were conducted with both teachers and purposively selected students to capture perspectives on planning processes, implementation experiences, and perceived learning outcomes. Interview protocols were validated through expert review to ensure alignment with research objectives and theoretical frameworks. Third, classroom observations were conducted using a systematic observation sheet encompassing 13 indicators of pedagogical practice, including instructional skills, material mastery, differentiation application, media utilization, formative and summative assessment implementation, and learning environment quality. Each indicator was rated on the same four-point scale, with detailed field notes documenting specific examples of differentiated practices. The integration of multiple data sources enabled cross-validation and enhanced the trustworthiness of findings through data source and methodological triangulation (Patton, 2015).

Data analysis followed the Miles and Huberman (1994) interactive model, consisting of three concurrent and iterative stages. Data reduction involved systematically selecting, focusing, simplifying, and abstracting information from field notes, interview transcripts, and document reviews to identify

patterns relevant to research questions. Data display organized reduced information into matrices, charts, and narrative descriptions that facilitated pattern recognition and relationship identification across cases. Conclusion drawing and verification involved developing interpretations, noting regularities and causal flows, and testing preliminary conclusions against empirical evidence throughout the analytical process. This cyclical approach allowed for continuous refinement of interpretations as new data emerged, ensuring analytical rigor and credibility (Abdussamad, 2021; Saldaña, 2016). Credibility was further enhanced through member checking with participating teachers and prolonged engagement in research settings.

## RESULTS AND DISCUSSION

### Results

#### *Planning and Development of Differentiated Teaching Modules*

The initial phase of this investigation examined how teachers designed and developed Indonesian language teaching modules using differentiated learning principles. Both Teacher DN at Wonorejo Elementary School and Teacher Y at Tepasari 01 Elementary School demonstrated systematic approaches grounded in comprehensive student assessment. The foundational step in module development involved conducting diagnostic assessments to map students' learning styles, interests, and readiness levels—a practice consistent with contemporary differentiated instruction frameworks (Tomlinson et al., 2003). Student involvement during this planning stage was notably high, with learners consistently reporting that teachers actively solicited their input regarding learning preferences, difficulties, and resource selection, while providing autonomy in assignment completion approaches.

Table 1 presents the evaluation results of teaching modules developed by both teachers, assessed using an 11-component rubric scored on a four-point Likert scale (4=Very Good, 3=Good, 2=Fair, 1=Poor).

**Table 1.** Results of Teaching Module Review

| Teaching Module Component     | Teacher DN Score | Teacher Y Score |
|-------------------------------|------------------|-----------------|
| Module Identity               | 3                | 4               |
| Initial Competence            | 4                | 3               |
| Pancasila Student Profile     | 2                | 2               |
| Facilities and Infrastructure | 4                | 4               |
| Student Targets               | 4                | 4               |
| Learning Objectives           | 4                | 4               |
| Meaningful Understanding      | 4                | 3               |
| Provocative Questions         | 4                | 4               |
| Learning Activities           | 3                | 4               |
| Assessment                    | 4                | 4               |
| Attachments                   | 4                | 4               |
| Final Score                   | 40               | 40              |
| Category                      | Very Good        | Very Good       |

Both teachers achieved identical overall scores of 40, categorized as "Very Good," demonstrating substantial competence in module design. However, nuanced differences emerged in specific components. Teacher DN excelled in capturing initial competence assessment and meaningful understanding articulation, while Teacher Y demonstrated superior module identity clarity and learning activity structuring. Notably, both teachers scored lower (2 points) on Pancasila Student Profile integration, indicating a common challenge in explicitly connecting learning objectives with national character education frameworks—an area requiring additional professional development support.

An unexpected finding emerged regarding the iterative nature of module development. Both teachers reported conducting multiple rounds of student mapping throughout the unit, rather than relying solely on initial diagnostic assessments. This adaptive approach, not originally anticipated,

suggests that effective differentiation requires continuous assessment and module refinement rather than static planning—a practice that enhances responsiveness to evolving student needs (Prast et al., 2018).

### ***Implementation of Differentiated Learning***

Classroom observations revealed distinct yet equally effective implementation approaches. Teacher DN employed what can be characterized as a "humanistic-contextual" model, emphasizing emotional engagement and real-world connections. In contrast, Teacher Y implemented a "systematic-technological" model characterized by structured problem-based learning sequences.

#### ***Teacher DN's Implementation Pattern***

During Session 1, Teacher DN's approach demonstrated strong affective engagement. The initial phase (15 minutes) utilized an emoji game that created a psychologically safe environment for emotional expression, exemplified by student AN's enthusiastic engagement with emotion cards. The core phase (40 minutes) featured differentiated reading of "Teman Baru Frida" with three distinct support levels: Group A received intensive scaffolding with visual supports, Group B obtained moderate assistance, and Group C engaged in independent character analysis. The closing phase (15 minutes) revealed that 80% of students successfully connected narrative content to personal experiences, indicating deep comprehension beyond literal understanding.

Session 2 maintained this differentiated structure while progressing to productive skills. Following a dynamic "Sambung Kata" game opening (15 minutes), the core phase (50 minutes) implemented tiered worksheets that guided students through story element analysis at differentiated complexity levels. The activity culminated in differentiated product creation, with Group A receiving continuous teacher support, Group B accessing assistance as needed, and Group C working autonomously with creative latitude. Student presentations (15 minutes) demonstrated internalization of empathy concepts through varied expressive modes.

#### ***Teacher Y's Implementation Pattern***

Teacher Y's structured Problem-Based Learning approach in Session 1 began with comprehensive opening rituals (15 minutes) including national anthem singing and targeted apperception questions. The core phase (45 minutes) systematically progressed through PBL stages: problem orientation with contextual scenarios, heterogeneous grouping based on diagnostic data, guided investigation using structured worksheets, and systematic presentation by 80% of groups. The analysis and evaluation phase revealed students' capacity to articulate reading messages through multiple representational forms. Session 2 (70 minutes total) featured contextual image analysis for fact-opinion differentiation, with student DA demonstrating advanced analytical skills by identifying three factual and two opinion-based elements independently, while other students like GWB required targeted intervention.

Table 2 summarizes observational assessment of both teachers' implementations across 13 pedagogical indicators.

**Table 2.** Implementation Observation Results

| Observation Indicator         | Teacher DN | Teacher Y |
|-------------------------------|------------|-----------|
| Lesson opening/closing skills | 4          | 4         |
| Higher-order questioning      | 4          | 4         |
| Reinforcement provision       | 4          | 4         |
| Content mastery               | 4          | 4         |
| Language appropriateness      | 4          | 4         |
| Classroom management          | 4          | 4         |
| Discussion facilitation       | 3          | 3         |
| Pancasila profile integration | 3          | 3         |
| Differentiation application   | 4          | 4         |
| Media/resource utilization    | 4          | 4         |
| Assessment implementation     | 3          | 4         |
| Positive communication        | 4          | 4         |

|                       |           |           |
|-----------------------|-----------|-----------|
| Inclusive environment | 4         | 4         |
| Total Score           | 49        | 50        |
| Category              | Very Good | Very Good |

Both teachers demonstrated exceptional competence, with near-perfect implementation scores (49 and 50 out of 52 possible points). The primary areas for enhancement—discussion facilitation and Pancasila profile integration—were consistent across both teachers, suggesting systemic rather than individual challenges. Teacher Y's slightly higher score derived from more comprehensive formative and summative assessment integration throughout lessons.

### ***Learning Outcomes Across Three Domains***

Table 3 presents cognitive learning achievement data demonstrating exceptional mastery rates.

**Table 3.** Cognitive Learning Outcomes

| Ability Category  | Wonorejo ES (n=16)  | Tepisari 01 ES (n=10) |
|-------------------|---------------------|-----------------------|
| Top (90-100)      | 6 students (37.5%)  | 4 students (40%)      |
| Middle (80-89)    | 7 students (43.75%) | 4 students (40%)      |
| Bottom (70-79)    | 3 students (18.75%) | 2 students (20%)      |
| Classical Mastery | 100%                | 100%                  |
| Average Score     | 85.6                | 84.5                  |

Both schools achieved 100% classical mastery—a remarkable outcome given the initial baseline data showing only 44% and 40% proficiency respectively. At Wonorejo, score distribution ranged from 75-95, with 81.25% achieving scores of 80 or higher. At Tepisari 01, scores ranged from 70-95, with 80% scoring 80 or above. The narrow score range (20-25 points) suggests effective differentiation that elevated lower-performing students while challenging higher-achieving learners.

Affective development was assessed through distinct frameworks at each school. At Wonorejo (Table 4), Teacher DN evaluated discipline, active participation, and cooperation.

**Table 4.** Affective Outcomes at Wonorejo Elementary School

| Aspect               | Performance Level       | Student Count | Percentage |
|----------------------|-------------------------|---------------|------------|
| Discipline           | Highly Disciplined (5)  | 7             | 43.75%     |
|                      | Visibly Disciplined (4) | 9             | 56.25%     |
| Active Participation | Highly Active (5)       | 3             | 18.75%     |
|                      | Visibly Active (4)      | 10            | 62.50%     |
|                      | Moderately Active (3)   | 3             | 18.75%     |
| Cooperation          | Highly Engaged (5)      | 6             | 37.50%     |
|                      | Engaged (4)             | 10            | 62.50%     |

At Tepisari 01, Teacher Y employed a more granular framework aligned with social-emotional learning dimensions, assessing self-awareness, self-management, social awareness, and social skills across multiple indicators. While space constraints prevent full tabulation, key findings revealed that student DA consistently demonstrated exemplary social awareness (score 4), while several students required continued development in emotional self-regulation. This heterogeneity in affective development—even with differentiated instruction—suggests that socio-emotional competencies develop at variable rates requiring extended intervention timeframes.

Skill-based assessments focused on Indonesian language production capabilities, specifically short story writing (Wonorejo) and analytical presentation skills (Tepisari 01). At Wonorejo, all 16 students achieved mastery with scores ranging from 78-92 (mean=85.4), indicating successful skill transfer from comprehension to production. At Tepisari 01, assessment of accuracy, activity, and presentation quality yielded scores of 73-95 (mean=83.1), with greater variance reflecting the complexity of analytical performance tasks. Notably, two students (MT and SG) achieved the



maximum score of 95, demonstrating that differentiation can facilitate exceptional achievement when student readiness and support align optimally.

## Discussion

This study's central findings address three interrelated research questions regarding the planning, implementation, and effectiveness of differentiated instruction within the Merdeka Curriculum framework for Indonesian language education at the elementary level. The convergence of multiple data sources—module reviews, classroom observations, and multi-domain learning outcomes—provides robust evidence that systematic differentiation yields substantial educational benefits when implemented with fidelity to core principles.

The planning and development processes documented here align strongly with Tomlinson's differentiation framework while extending it through integration with the Merdeka Curriculum's liberating pedagogy (Faiz & Faridah, 2022). Both teachers' emphasis on diagnostic assessment as the foundation for module design corroborates contemporary research emphasizing that effective differentiation begins with comprehensive understanding of learner variability (Roy et al., 2013; van Geel et al., 2019). The unexpected finding regarding continuous reassessment throughout instruction supports emerging evidence that differentiation operates most effectively as an iterative, responsive process rather than a fixed instructional plan (Coubergs et al., 2017). This adaptive approach addresses criticism that differentiation is too complex for practical implementation by demonstrating that teachers can successfully navigate this complexity through systematic cycles of assessment-instruction-adjustment.

The divergent yet equally effective implementation approaches—humanistic-contextual versus systematic-technological—illuminate an important theoretical insight: differentiation is fundamentally a framework accommodating multiple pedagogical expressions rather than a prescriptive methodology. This finding challenges assumptions that differentiation effectiveness requires standardized implementation protocols. Instead, results suggest that teacher authenticity and alignment between pedagogical beliefs and differentiation strategies may be more consequential than adherence to specific techniques (Smale-Jacobse et al., 2019). This flexibility is particularly significant for the Merdeka Curriculum's emphasis on teacher agency and contextual adaptation.

The 100% mastery achievement across both schools represents a dramatic improvement from baseline proficiency rates of 40-44%, providing compelling evidence for differentiation's effectiveness in raising achievement floors without lowering ceilings—the convergent differentiation goal articulated in educational equity literature (Bosker, 2005). These cognitive gains align with meta-analytic findings demonstrating moderate to large effect sizes for differentiated instruction on academic achievement (AM et al., 2023; Smale-Jacobse et al., 2019), while extending this evidence base into Indonesian elementary contexts where empirical research remains limited.

Particularly noteworthy is the achievement of simultaneous gains across cognitive, affective, and psychomotor domains. Meta-analytic evidence indicates that differentiated instruction shows highest effectiveness for affective outcomes (effect size  $g=2.08$ ), followed by cognitive and psychomotor domains (AM et al., 2023). The present findings corroborate this pattern, with affective indicators—particularly cooperation, social awareness, and engagement—showing pronounced development. The strong positive correlations among learning domains documented in recent research ( $r=0.76-0.82$ ) suggest that the affective gains observed here may have reciprocally enhanced cognitive and psychomotor achievement, representing a virtuous cycle of holistic development.

Despite overwhelmingly positive findings, several observations warrant critical attention. First, both teachers demonstrated persistent challenges in explicitly integrating Pancasila Student Profile dimensions into instruction, scoring only 2 out of 4 on this component. This gap reveals a potential disconnect between curriculum policy intentions and classroom implementation realities, suggesting that character education integration requires more explicit pedagogical guidance and professional development than currently provided (Sururi et al., 2023). The Merdeka Curriculum's emphasis on

Pancasila values as central learning outcomes makes this implementation gap particularly significant and worthy of targeted intervention.

Second, the heterogeneity in affective development—particularly in self-management and emotional regulation—suggests that differentiation's effectiveness varies across outcome types. While differentiation successfully addressed cognitive diversity and promoted inclusive participation, deeper socio-emotional competencies appear more resistant to short-term instructional intervention. This finding aligns with developmental psychology research indicating that emotional regulation capacity develops gradually across childhood and adolescence, requiring sustained, integrated support beyond academic instruction (Allen & Nelson, 2018). Educators and policymakers should therefore maintain realistic expectations regarding differentiation's capacity to address deep-seated socio-emotional challenges within limited timeframes.

Third, the study's focus on two high-performing Sekolah Penggerak schools raises transferability questions. These schools benefit from enhanced professional development, administrative support, and resource access—conditions that facilitated the observed implementation quality. Research consistently identifies these factors as critical enablers of differentiation success (de Jager, 2017; Gaitas & Alves Martins, 2017), suggesting that replication in resource-constrained contexts may yield different outcomes. Future research should investigate differentiation effectiveness across diverse implementation contexts to establish boundary conditions for these findings.

This study extends differentiated instruction theory by demonstrating its effective integration with specific national curriculum reform initiatives designed for post-pandemic recovery. The findings support the theoretical proposition that differentiation serves as a meta-framework accommodating diverse pedagogical approaches rather than constituting a singular instructional method. Additionally, the documentation of effective differentiation across cognitive, affective, and psychomotor domains simultaneously advances understanding of holistic learning, an area where empirical research remains limited (Rovai et al., 2009).

For teachers, the research demonstrates that systematic diagnostic assessment, flexible grouping, tiered support, and differentiated products constitute a practical, implementable approach to addressing learner diversity within the Merdeka Curriculum. The contrasting yet equally effective implementation models suggest that teachers can adapt differentiation principles to their pedagogical strengths rather than adopting prescriptive techniques. School administrators should prioritize professional development emphasizing continuous assessment practices, collaborative module design, and integration of character education with academic content—the areas where implementation challenges persisted. Policymakers should consider these findings when designing curriculum support resources and teacher preparation programs.

Several constraints affect interpretation and generalization of findings. The qualitative case study design, while providing rich contextual understanding, limits statistical generalizability. The two-month implementation period, though sufficient to demonstrate initial effectiveness, cannot address long-term sustainability or cumulative effects. The focus on high-capacity Sekolah Penggerak schools, while methodologically justified, restricts transferability to typical school contexts. Additionally, student learning outcomes were assessed using teacher-developed instruments rather than standardized measures, potentially introducing measurement bias favoring the intervention. Future research should employ mixed-methods designs with larger samples, standardized outcome measures, longitudinal follow-up, and diverse school contexts to enhance generalizability.

This investigation ultimately affirms that differentiated instruction, when grounded in systematic assessment and implemented with pedagogical authenticity, constitutes a viable approach to actualizing the Merdeka Curriculum's vision of learner-centered, liberating education. The achievement of universal mastery alongside preserved individual growth trajectories demonstrates that educational equity and excellence need not be mutually exclusive goals. Rather, through strategic differentiation of content access, learning processes, and product expectations, teachers can construct learning environments where diversity enriches rather than constrains educational opportunity. This study thus



contributes both empirical evidence and practical models for advancing inclusive education reform in post-pandemic Indonesian contexts.

## CONCLUSION

This study demonstrates that differentiated instruction, when systematically designed and authentically implemented, constitutes an effective pedagogical approach for Indonesian language education within the Merdeka Curriculum framework. The investigation reveals three key findings: first, effective module development requires continuous diagnostic assessment rather than static planning, with both participating teachers achieving "Very Good" ratings through iterative refinement processes; second, differentiation accommodates diverse pedagogical expressions, as evidenced by equally successful humanistic-contextual and systematic-technological implementation models; third, differentiated instruction yields substantial gains across cognitive, affective, and psychomotor domains simultaneously, elevating proficiency from baseline rates of 40-44% to 100% mastery while preserving individual growth trajectories.

The research contributes theoretically by extending differentiated instruction frameworks into post-pandemic curriculum reform contexts and demonstrating that differentiation operates as a meta-framework rather than prescriptive methodology. Practically, it provides implementable models for teachers navigating learner-centered mandates while offering administrators and policymakers evidence-based guidance for professional development prioritization. However, persistent challenges in Pancasila Student Profile integration and heterogeneous socio-emotional development indicate that curriculum policy aspirations require more explicit pedagogical translation and sustained intervention timeframes than currently provided.

Study limitations include restricted generalizability due to qualitative design, focus on high-capacity Sekolah Penggerak contexts, short implementation duration, and reliance on teacher-developed assessments. Future research should employ mixed-methods designs with standardized outcome measures, longitudinal tracking, and diverse school contexts to establish boundary conditions for differentiation effectiveness. Additionally, investigating scalability mechanisms, cost-effectiveness analyses, and technology integration potential would advance understanding of sustainable implementation pathways. Ultimately, this study affirms that strategic differentiation can actualize educational equity and excellence as complementary rather than competing objectives within inclusive reform initiatives.

## REFERENCES

- Abdussamad, Z. (2021). *Metode penelitian kualitatif*. Syakir Media Press.
- Allen, N., & Nelson, B. W. (2018). The development of emotion regulation across the transition from childhood to adolescence: Regulation of what and regulation for whom?. In *Emotion regulation* (pp. 140-157). Routledge. <https://doi.org/10.4324/9781351001328>
- AM, S. P., Saleh, M., Bharati, D. A. L., & Mujiyanto, J. (2023). The effectiveness of differentiated instruction (DI) in improving student learning outcomes: A meta-analysis study. *International Journal of Instruction*, 16(2), 365-386. <https://doi.org/10.29333/iji.2023.16221a>
- Anggraena, Y., Felicia, N., Ginanto, D. E., Pratiwi, I., Utama, B., Alhapip, L., & Widiawati, D. (2022). *Kajian akademik: Kurikulum untuk pemulihan pembelajaran*. Pusat Kurikulum dan Pembelajaran Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Ariyanti, R., & Hidayat, M. T. (2023). Analisis kesiapan guru dalam melaksanakan pembelajaran kurikulum merdeka di SD Muhammadiyah 1 Karangjati. *ELSE: Elementary School Education Journal*, 7(1), 76-90. <https://doi.org/10.30651/else.v7i1.12965>
- Azevedo, J. P., Hasan, A., Goldemberg, D., Geven, K., & Iqbal, S. A. (2021). Simulating the potential impacts of COVID-19 school closures on schooling and learning outcomes: A set of global

- estimates. *The World Bank Research Observer*, 36(1), 1-40.  
<https://academic.oup.com/wbro/article/36/1/1/6174606>
- Bosker, R. J. (2005). De grenzen van gedifferentieerd onderwijs [The limits of differentiated education]. *Pedagogische Studiën*, 82(6), 407-422. <https://research.rug.nl/files/14812458/bosker.pdf>
- Bremner, N., Sakata, N., & Cameron, L. (2022). The outcomes of learner-centred pedagogy: A systematic review. *International Journal of Educational Development*, 94, 102654. <https://doi.org/10.1016/j.ijedudev.2022.102649>
- Connor, C. M. (2016). A lattice model of the development of reading comprehension. *Child Development Perspectives*, 10(4), 269-274. <https://doi.org/10.1111/cdep.12200>
- Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. *Review of Educational Research*, 77(1), 113-143. <https://doi.org/10.3102/003465430298563>
- Coubergs, C., Struyven, K., Vanthournout, G., & Engels, N. (2017). Measuring teachers' perceptions about differentiated instruction: The DI-Quest instrument and model. *Studies in Educational Evaluation*, 53, 41-54. <https://doi.org/10.1016/j.stueduc.2017.02.004>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97-140. <https://doi.org/10.1080/10888691.2018.1537791>
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. <https://learningpolicyinstitute.org/product/effective-teacher-professional-development-report>
- De Neve, D., Devos, G., & Tuytens, M. (2015). The importance of job resources and self-efficacy for beginning teachers' professional learning in differentiated instruction. *Teaching and Teacher Education*, 47, 30-41. <https://doi.org/10.1016/j.tate.2014.12.003>
- de Jager, T. (2017). Perspectives of teachers on differentiated teaching in multi-cultural South African secondary schools. *Studies in Educational Evaluation*, 53, 115-121. <https://doi.org/10.1016/j.stueduc.2016.08.004>
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181-199. <https://doi.org/10.3102/0013189X08331140>
- Dixon, F. A., Yssel, N., McConnell, J. M., & Hardin, T. (2014). Differentiated instruction, professional development, and teacher efficacy. *Journal for the Education of the Gifted*, 37(2), 111-127. <https://doi.org/10.1177/0162353214529042>
- Duke, N. K., & Cartwright, K. B. (2021). The science of reading progresses: Communicating advances beyond the simple view of reading. *Reading Research Quarterly*, 56(S1), S25-S44. <https://doi.org/10.1002/rrq.411>
- Engzell, P., Frey, A., & Verhagen, M. D. (2021). Learning loss due to school closures during the COVID-19 pandemic. *Proceedings of the National Academy of Sciences*, 118(17), e2022376118. <https://doi.org/10.1073/pnas.2022376118>
- Faiz, A., & Faridah. (2022). Program guru penggerak sebagai sumber belajar. *Konstruktivisme: Jurnal Pendidikan dan Pembelajaran*, 14(1), 82-88. <https://doi.org/10.35457/konstruk.v14i1.1876>
- Gaitas, S., & Alves Martins, M. (2017). Teacher perceived difficulty in implementing differentiated instructional strategies in primary school. *International Journal of Inclusive Education*, 21(5), 544-556. <https://doi.org/10.1080/13603116.2016.1223180>
- Garcia, G. D. V. (2023). Executive functions and English reading comprehension among Filipino students. *Reading Psychology*, 44(4), 388-411. <https://doi.org/10.1080/02702711.2022.2156950>

- Gheysens, E., Consuegra, E., Engels, N., & Struyven, K. (2021). Creating inclusive classrooms in primary and secondary schools: From noticing to differentiated practices. *Teaching and Teacher Education*, 100, 103210. <https://doi.org/10.1016/j.tate.2020.103210>
- Graham, L. J., White, S. L. J., Cologon, K., & Pianta, R. C. (2020). Do teachers' years of experience make a difference in the quality of teaching? *Teaching and Teacher Education*, 96, 103190. <https://doi.org/10.1016/j.tate.2020.103190>
- Kuhfeld, M., Soland, J., & Lewis, K. (2022). Test score patterns across three COVID-19-impacted school years. *Educational Researcher*, 51(2), 146-158. <https://doi.org/10.3102/0013189X221109178>
- Kusumastuti, A., & Khoiron, A. M. (2019). *Metode penelitian kualitatif*. Lembaga Pendidikan Sukarno Pressindo.
- Little, C. A., McCoach, D. B., & Reis, S. M. (2014). Effects of differentiated reading instruction on student achievement in middle school. *Journal of Advanced Academics*, 25(4), 384-402. <https://doi.org/10.1177/1932202X14549250>
- Magableh, I. S. I., & Abdullah, A. (2022). Differentiated instruction effectiveness on the secondary stage students' reading comprehension proficiency level in Jordan. *International Journal of Evaluation and Research in Education*, 11(1), 459-466. <https://doi.org/10.11591/ijere.v11i1.21971>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). SAGE Publications.
- Ministry of Education, Culture, Research and Technology. (2021). *Program sekolah penggerak*. <https://sekolah.penggerak.kemdikbud.go.id/>
- Muhammad, G., Asri, A. N., & Fadilah, N. (2024). The effect of differentiated instruction on elementary students' reading motivation and comprehension. *International Journal of Instruction*, 17(2), 345-362. <https://doi.org/10.29333/iji.2024.17220a>
- Mullis, I. V., Martin, M. O., Foy, P., Kelly, D. L., & Fishbein, B. (2020). *PIRLS 2016 international results in reading*. International Association for the Evaluation of Educational Achievement. <https://timssandpirls.bc.edu/pirls2016/international-results/>
- National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. National Institute of Child Health and Human Development. <https://www.nichd.nih.gov/publications/pubs/nrp/smallbook>
- OECD. (2023). *PISA 2022 results: Factsheets*. Organisation for Economic Co-operation and Development. <https://www.oecd.org/pisa/publications/pisa-2022-results.htm>
- Patrinos, H. A., Vegas, E., & Carter-Rau, R. (2022). *An analysis of COVID-19 student learning loss* (World Bank Policy Research Working Paper No. 10033). World Bank Group. <https://openknowledge.worldbank.org/handle/10986/37400>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
- Pozas, M., Letzel, V., Lindner, K. T., & Schwab, S. (2021). DI (differentiated instruction) does matter! The effects of DI on secondary school students' well-being, social inclusion and academic self-concept. *Frontiers in Education*, 6, 729027. <https://doi.org/10.3389/feduc.2021.729027>
- Prast, E. J., Van de Weijer-Bergsma, E., Kroesbergen, E. H., & Van Luit, J. E. H. (2018). Differentiated instruction in primary mathematics: Effects of teacher professional development on student achievement. *Learning and Instruction*, 54, 22-34. <https://doi.org/10.1016/j.learninstruc.2018.01.009>
- Rahmawati, A. A., Roshayanti, F., & Mayasari, L. (2023). Penerapan pembelajaran berdiferensiasi untuk meningkatkan hasil belajar bahasa Indonesia kelas V sekolah dasar. *Prosiding Seminar Nasional Pendidikan Profesi Guru*, 1(2), 3060-3069. <https://conference.upgris.ac.id/index.php/psnppg/article/view/5469>

- Reis, S. M., McCoach, D. B., Little, C. A., Muller, L. M., & Kaniskan, R. B. (2011). The effects of differentiated instruction and enrichment pedagogy on reading achievement in five elementary schools. *American Educational Research Journal*, 48(2), 323-361. <https://doi.org/10.3102/0002831210382891>
- Rovai, A. P., Ponton, M. K., Derrick, M. G., & Davis, J. M. (2009). Student evaluation of teaching in the virtual and traditional classrooms: A comparative analysis. *Internet and Higher Education*, 9(1), 23-35. <https://doi.org/10.1016/j.iheduc.2005.11.002>
- Roy, A., Guay, F., & Valois, P. (2013). Teaching to address diverse learning needs: Development and validation of a differentiated instruction scale. *International Journal of Inclusive Education*, 17(11), 1186-1204. <https://doi.org/10.1080/13603116.2012.743604>
- Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE Publications.
- Scarborough, H. S. (2001). Connecting early language and literacy to later reading (dis)abilities: Evidence, theory, and practice. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 97-110). Guilford Press.
- Sims, S., Fletcher-Wood, H., O'Mara-Eves, A., Cottingham, S., Stansfield, C., Goodrich, J., Cukic, I., Van Herwegen, J., & Anders, J. (2021). What are the characteristics of effective teacher professional development? A systematic review and meta-analysis. *Educational Research Review*, 33, 100380. <https://eric.ed.gov/?id=ED615914>
- Smale-Jacobse, A. E., Meijer, A., Helms-Lorenz, M., & Maulana, R. (2019). Differentiated instruction in secondary education: A systematic review of research evidence. *Frontiers in Psychology*, 10, 2366. <https://doi.org/10.3389/fpsyg.2019.02366>
- Snow, C., & O'Connor, C. (2016). Close reading and far-reaching classroom discussion: Fostering a vital connection. *Journal of Education*, 196(1), 1-8. <https://doi.org/10.1177/002205741619600102>
- Sofiah, H., & Hikmawati, N. (2023). Pembelajaran berdiferensiasi pada mata pelajaran bahasa Indonesia (Analisis implementasi kurikulum merdeka di SD). *ABUYA: Jurnal Pendidikan Dasar*, 1(2), 112-125. <https://doi.org/10.52185/abuyaVol1iss2Y2023354>
- Stake, R. E. (1995). *The art of case study research*. SAGE Publications.
- Subban, P. (2006). Differentiated instruction: A research basis. *International Education Journal*, 7(7), 935-947. <https://files.eric.ed.gov/fulltext/EJ854351.pdf>
- Suprayogi, M. N., Valcke, M., & Godwin, R. (2017). Teachers and their implementation of differentiated instruction in the classroom. *Teaching and Teacher Education*, 67, 291-301. <https://doi.org/10.1016/j.tate.2017.06.020>
- Sururi, Afifah, D. E., Kurniatun, T. C., & Hafidh, Z. (2023). Sekolah penggerak program: An analysis of implementation in junior high schools. *Indonesian Journal of Educational Research and Review*, 6(3), 669-680. <https://doi.org/10.23887/ijerr.v6i3.68199>
- Taufiq, M., Manaf, M., & Alimuddin, I. (2023). Zonasi Sekolah Dalam Upaya Pemerataan Akses Pendidikan: Analisis Keruangan Pada Sebaran Sekolah Menengah Atas di Kota Parepare. *Urban and Regional Studies Journal*, 6(1), 94-107. <https://doi.org/10.35965/ursj.v6i1.3810>
- Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development: Best evidence synthesis iteration*. New Zealand Ministry of Education. <https://www.educationcounts.govt.nz/publications/series/2515/15341>
- Tomlinson, C. A., Brighton, C., Hertberg, H., Callahan, C. M., Moon, T. R., Brimijoin, K., Conover, L. A., & Reynolds, T. (2003). Differentiating instruction in response to student readiness, interest, and learning profile in academically diverse classrooms: A review of literature. *Journal for the Education of the Gifted*, 27(2-3), 119-145. <https://doi.org/10.1177/016235320302700203>
- UNESCO. (2021). *Education: From disruption to recovery*. UNESCO Institute for Statistics. <https://covid19.uis.unesco.org/learning-loss/>

- UNICEF. (2021). *COVID-19 and school closures: One year of education disruption*. UNICEF Data Brief. <https://data.unicef.org/resources/one-year-of-covid-19-and-school-closures/>
- van Geel, M., Keuning, T., Frèrejean, J., Dolmans, D., van Merriënboer, J., & Visscher, A. J. (2019). Capturing the complexity of differentiated instruction. *School Effectiveness and School Improvement*, 30(1), 51-67. <https://doi.org/10.1080/09243453.2018.1539013>
- Wahyuni, S., Thahir, A., Karma, R., & Putriani, A. (2023). Pembelajaran berdiferensiasi pada mata pelajaran bahasa Indonesia materi menulis puisi di tingkat SMP. *Jurnal Review Pendidikan dan Pengajaran*, 6(2), 456-467. <https://journal.universitaspahlawan.ac.id/index.php/jrpp/article/view/17967>
- Weimer, M. (2013). *Learner-centered teaching: Five key changes to practice* (2nd ed.). Jossey-Bass.
- World Bank. (2022a). *Learning recovery to acceleration: A global update on country efforts to improve learning outcomes*. World Bank Group. <https://openknowledge.worldbank.org/handle/10986/37219>
- World Bank. (2022b). *The state of global learning poverty: 2022 update*. World Bank Group. <https://openknowledge.worldbank.org/handle/10986/37919>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.
- Zendrato, J., & Agatha, D. C. (2023). An analysis of Merdeka Curriculum implementation in Indonesia: A case study of facilitating students' transformation. *Jurnal Shanan*, 7(2), 227-242. <https://doi.org/10.33541/shanan.v7i2.5188>