

Adaptive-Contextual Differentiated Instruction in Post-Disaster Schools: Teachers' Perceptions and Pedagogical Negotiation

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ABSTRAK

Abstrak: Penelitian ini bertujuan menganalisis persepsi guru terhadap diferensiasi pembelajaran, faktor-faktor yang memengaruhi implementasinya, serta bentuk negosiasi pedagogis yang berkembang dalam implementasi Kurikulum Merdeka di sekolah pascabencana Lombok. Penelitian menggunakan paradigma konstruktivis-interpretif dengan desain studi multi kasus kualitatif pada tiga Sekolah Penggerak di wilayah pascabencana. Data dikumpulkan melalui wawancara mendalam, observasi kelas, dan analisis dokumen, kemudian dianalisis secara tematik melalui within-case dan cross-case analysis. Hasil penelitian menunjukkan bahwa diferensiasi pembelajaran berkembang secara adaptif dan kontekstual, bukan sebagai praktik pedagogis yang linear dan prosedural. Persepsi guru terhadap diferensiasi cenderung parsial, pragmatis, dan dipengaruhi oleh keterbatasan struktural, budaya sekolah, pengalaman pedagogis, serta kondisi sosio-ekologis pascabencana. Penelitian ini juga menemukan bahwa teknologi tidak berfungsi sebagai determinan utama implementasi diferensiasi, melainkan sebagai akselerator sekunder yang efektivitasnya bergantung pada kapasitas pedagogis guru. Temuan penelitian menghasilkan model konseptual Contextual Adaptive Differentiation Model (CADM) yang menempatkan diferensiasi pembelajaran sebagai praktik pedagogis yang dinegosiasikan secara adaptif sesuai realitas kontekstual sekolah.

Abstract: This study aimed to analyze teachers' perceptions of differentiated instruction, factors influencing its implementation, and forms of pedagogical negotiation emerging within the implementation of the Merdeka Curriculum in post-disaster schools in Lombok. The study employed a constructivist-interpretive paradigm using a qualitative multi-case study design involving three Sekolah Penggerak schools located in post-disaster areas. Data were collected through in-depth interviews, classroom observations, and document analysis, then analyzed thematically through within-case and cross-case analysis. The findings revealed that differentiated instruction developed adaptively and contextually rather than as a linear and procedural pedagogical practice. Teachers' perceptions of differentiated instruction tended to be partial, pragmatic, and strongly influenced by structural limitations, school culture, pedagogical experiences, and post-disaster socio-ecological realities. The study also found that technology did not function as the primary determinant of differentiated instruction implementation, but rather as a secondary accelerator whose effectiveness depended on teachers' pedagogical capacity. The findings resulted in the conceptual development of the Contextual Adaptive Differentiation Model (CADM), which positions differentiated instruction as an adaptively negotiated pedagogical practice shaped by contextual school realities.



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A. INTRODUCTION

The transformation of twenty-first century education has shifted pedagogical paradigms from standardized instruction toward more flexible, student-centered, and adaptive learning approaches. This transformation is driven by the recognition that students possess diverse learning readiness, interests, cognitive capacities, and socio-cultural backgrounds, making uniform instructional practices increasingly inadequate in addressing learners' educational needs effectively (Subban, 2006; Tomlinson, 2014). Consequently, contemporary educational reforms emphasize instructional flexibility and responsive pedagogy that enable teachers to accommodate learner diversity within increasingly complex educational environments. Within this context, differentiated instruction (DI) has emerged as one of the most influential pedagogical approaches aimed at adapting content, process, product, and learning environments according to students' individual learning characteristics (Tomlinson, 2001; Tomlinson & McTighe, 2005; UNESCO, 2021).

In Indonesia, differentiated instruction has become a central pedagogical orientation within the implementation of the Merdeka Curriculum, which promotes curriculum flexibility, student-centered learning, and teacher agency in classroom practice (Kemendikbudristek, 2022). The Merdeka Curriculum was introduced as a response to various educational challenges, including learning loss, low literacy and numeracy achievement, and the need to strengthen twenty-first century competencies (Faiz, 2022). Through this policy, teachers are expected to design adaptive learning experiences that accommodate students' diverse needs while simultaneously integrating digital technology into classroom instruction. However, the implementation of differentiated instruction in practice remains highly complex, particularly within schools experiencing infrastructural limitations, socio-ecological instability, and post-disaster educational disruption.

Previous studies indicate that differentiated instruction continues to face conceptual and practical challenges in classroom implementation. Smale-Jacobse et al., (2019) explain that differentiated instruction still suffers from conceptual ambiguity, resulting in fragmented teacher interpretations and simplified implementation practices. Similarly, Deunk et al. (2018) argue that differentiated instruction requires high pedagogical capacity because teachers must simultaneously conduct diagnostic assessment, instructional modification, classroom management, and adaptive learning facilitation. In the Indonesian context, Suprayogi & Valcke (2016) and Bowtell et al. (2018) found that differentiated instruction implementation is strongly influenced by teachers' beliefs, pedagogical readiness, and school culture, causing differentiated practices to develop pragmatically according to contextual educational realities rather than according to idealized theoretical formulations.

Most previous studies have predominantly approached differentiated instruction through structural and resource-based perspectives by positioning institutional support, teacher training, and technology integration as the primary determinants of successful implementation (Scherer et al., 2019; Waruwu, 2023). Such perspectives tend to conceptualize teachers as procedural implementers of educational policy who apply differentiated instruction rationally and systematically. However, classroom practices rarely develop mechanically; rather, they evolve through teachers' interpretations, pedagogical experiences, contextual negotiations, and adaptive responses to educational realities (Borg, 2003; Pajares, 1992). Consequently, differentiated instruction cannot be adequately understood merely as a technical instructional strategy, but must also be viewed as a socially negotiated pedagogical practice shaped by contextual conditions.

The limitations of existing differentiated instruction studies become more evident within post-disaster educational settings. Most classical differentiated instruction theories were developed in relatively stable and resource-rich educational environments characterized by adequate infrastructure, institutional support, and technological accessibility (Tomlinson, 2014). In contrast, post-disaster schools frequently operate under conditions of infrastructural instability, limited educational resources, psychosocial disruption, and fluctuating learning readiness (Langelaan, 2024; Mutch, 2015). Despite these contextual complexities, studies examining how teachers interpret, negotiate, and adapt differentiated instruction within post-disaster educational realities remain relatively limited. Moreover, little attention has been given to the interaction among teacher perception, structural limitations, adaptive pedagogical practice, and contextual educational realities in shaping differentiated instruction implementation. This gap positions the present study as an attempt to extend differentiated instruction beyond normative and procedural assumptions toward a more adaptive-contextual pedagogical perspective.

Based on these conditions, this study aims to: (1) analyze teachers' perceptions of differentiated instruction within the implementation of the Merdeka Curriculum; (2) identify factors influencing differentiated instruction implementation; and (3) examine why these factors shape teachers' perceptions and instructional practices within post-disaster schools in Lombok. Rather than positioning differentiated instruction as a fixed pedagogical procedure, this study conceptualizes differentiated instruction as an adaptive and negotiated pedagogical practice shaped through teachers' contextual interpretation, structural negotiation, and pedagogical adaptation.

This study is important because it provides a new perspective in understanding differentiated instruction implementation within complex and resource-constrained educational environments. Unlike previous studies that predominantly emphasize technological integration and structural support, this study highlights teachers' adaptive agency and contextual interpretation as central elements shaping

instructional practice. Furthermore, the post-disaster context of Lombok offers a distinctive empirical setting rarely explored in differentiated instruction research. By examining how teachers negotiate instructional practices within socio-ecological instability and structural limitations, this study contributes to the development of adaptive-contextual differentiated instruction as a more contextually grounded framework for understanding differentiated learning practices in diverse educational realities.

B. METHOD

This study employed a constructivist-interpretive paradigm using a qualitative multi-case study design to explore teachers' perceptions and pedagogical negotiation in the implementation of differentiated instruction within post-disaster schools implementing the Merdeka Curriculum. The constructivist-interpretive paradigm positions educational reality as socially constructed through teachers' experiences, contextual interpretations, and pedagogical interactions (Creswell & Poth, 2018). A multi-case study approach was selected because the study aimed to examine differentiated instruction practices across different school contexts, allowing cross-case comparison and conceptual abstraction (Yin, 2018). The study was conducted in three Sekolah Penggerak institutions located in post-disaster areas of Lombok, namely SMPN 10 Mataram, SMPN 1 Pemenang, and SMPS NW Suralaga. These schools were selected purposively because they represent schools implementing the Merdeka Curriculum within socio-ecological environments characterized by post-disaster educational challenges, infrastructural limitations, and contextual pedagogical adaptation.

Data were collected through in-depth interviews, classroom observations, and document analysis involving teachers and school principals as research participants. Interviews focused on teachers' perceptions of differentiated instruction, pedagogical experiences, adaptive teaching practices, and contextual challenges in implementing the Merdeka Curriculum. Classroom observations were conducted to examine instructional interaction, learning adaptation, student grouping, classroom flexibility, and technology integration practices. Supporting documents such as lesson plans, school policy documents, and learning administration records were also analyzed to strengthen data triangulation. Data analysis was conducted iteratively through thematic coding, within-case analysis, cross-case comparison, and conceptual synthesis following an iterative-comparative approach. The trustworthiness of the findings was ensured through source triangulation, technique triangulation, member checking, audit trail, and researcher reflexivity, as shown in Table 1.

Table 1. Multi-Case Research Setting.

Case	School	Contextual Characteristics
Case 1	SMPN 10 Mataram	Urban Sekolah Penggerak with technology-oriented learning
Case 2	SMPN 1 Pemenang	Post-disaster coastal school with infrastructural limitations
Case 3	SMPS Suralaga	NW Community-based school with contextual pedagogical adaptation

C. RESULT AND DISCUSSION

1. Teachers' Perceptions of Differentiated Instruction

The findings revealed that teachers' perceptions of differentiated instruction (DI) within the implementation of the Merdeka Curriculum tended to be partial, adaptive, and pragmatic. Most teachers understood differentiated instruction primarily as instructional variation, flexible grouping, differentiated assignments, and the use of simple learning media rather than as a comprehensive pedagogical framework integrating readiness, interests, learning profiles, and flexible assessment. Teachers generally interpreted DI in practical terms that were directly applicable to their classroom situations. Consequently, differentiated instruction was not implemented according to idealized theoretical assumptions but was reconstructed based on contextual classroom realities and instructional feasibility.

Classroom observations demonstrated that teachers frequently simplified differentiated instruction into manageable instructional strategies that could sustain learning continuity within resource-constrained educational environments. Teachers tended to apply differentiation through grouping students according to achievement levels, assigning varying tasks, simplifying instructional materials, and modifying classroom interaction patterns. However, these practices rarely involved systematic diagnostic assessment or individualized instructional planning as emphasized in classical differentiated instruction frameworks. Instead, teachers prioritized practical instructional flexibility that could be realistically implemented within large classes, unstable learning conditions, and limited educational facilities.

The findings further showed that teachers' perceptions were strongly influenced by pedagogical experiences, institutional expectations, school culture, and socio-ecological post-disaster realities. Teachers working within schools experiencing infrastructural instability and technological limitations demonstrated stronger tendencies toward pedagogical simplification and contextual adaptation. In these schools, teachers perceived differentiated instruction not as an ideal pedagogical framework requiring comprehensive implementation but as a flexible strategy adjusted to contextual learning realities (Pozas, 2022). As one participant explained,

differentiated instruction was understood “not as a complete model, but as a way to help students learn according to the actual classroom condition.”

These findings indicate the emergence of epistemic distortion, namely the reinterpretation and simplification of differentiated instruction meanings as an adaptive response to pedagogical, structural, and contextual limitations. Teachers’ simplification of DI did not necessarily reflect conceptual misunderstanding alone but represented rational pedagogical adaptation within constrained educational environments. This finding demonstrates that differentiated instruction implementation in post-disaster schools develops through negotiated pedagogical interpretation rather than through rigid procedural implementation. Consequently, teachers actively reconstructed instructional practices according to contextual educational realities and classroom feasibility, as shown in Table 2.

Table 2. Teachers’ Perceptions of Differentiated Instruction

Emerging Theme	Description
Partial perception	DI is interpreted mainly as task variation and grouping
Adaptive perception	DI adjusted according to contextual realities
Pragmatic perception	Teachers prioritized feasible instructional practices
Simplified implementation	DI operationalized through practical adaptation

2. Factors Influencing Differentiated Instruction Implementation

The findings revealed that differentiated instruction implementation was influenced by a complex interaction among pedagogical experience, teacher self-efficacy, institutional support, school culture, technology access, infrastructural conditions, and post-disaster educational realities. However, these factors did not operate independently or deterministically. Instead, their influence was mediated through teachers’ interpretive processes, contextual understanding, and adaptive pedagogical capacity. Teachers with stronger pedagogical confidence and collaborative professional environments demonstrated greater flexibility in adapting differentiated instruction practices despite existing structural limitations.

Institutional and structural conditions significantly shaped teachers’ instructional adaptation. Schools with supportive leadership and collaborative school cultures enabled teachers to exchange teaching strategies, discuss learning difficulties, and collectively negotiate differentiated learning practices. Conversely, schools experiencing administrative overload, limited educational facilities, unstable classroom conditions, and inadequate professional preparation constrained teachers’ ability to implement differentiated instruction comprehensively (Vygotsky, 1978). Teachers frequently described differentiated instruction as difficult to implement, ideally, because classroom realities often differed substantially from policy expectations.

The findings also demonstrated that post-disaster socio-ecological conditions influenced differentiated instruction implementation substantially. In schools affected by infrastructural instability and fluctuating student learning readiness, teachers prioritized instructional continuity and emotional classroom stability over procedural differentiation complexity (Pickens, 2005). Teachers frequently simplified lesson plans, adjusted instructional pacing, reorganized student interaction patterns, and adapted learning activities according to classroom feasibility and psychosocial conditions (Bandura, 1997). These findings suggest that differentiated instruction implementation was strongly shaped by contextual educational realities rather than by standardized policy frameworks alone.

Technology was found not to function as the primary determinant of differentiated instruction implementation. Although digital transformation was emphasized within the Sekolah Penggerak program, teachers in post-disaster schools relied more heavily on contextual teaching strategies, interpersonal interaction, flexible grouping, and adaptive classroom management than on sophisticated technological systems. Technology functioned primarily as a secondary accelerator whose effectiveness depended on teachers' pedagogical-reflective capacity and contextual school realities. Teachers with limited digital access were still able to implement differentiated learning effectively through contextual instructional adaptation and interpersonal pedagogical flexibility, as shown in Table 3.

Table 3. Factors Influencing Differentiated Instruction Implementation

Internal Factors	External Factors
Pedagogical experience	School infrastructure
Teacher self-efficacy	Institutional support
Teacher beliefs	Technology access
Reflective practice	School culture
Adaptive capacity	Post-disaster realities

The findings of this study demonstrate that differentiated instruction within post-disaster schools develops not as a linear and procedural pedagogical framework, but as an adaptive-contextual instructional practice shaped through continuous pedagogical negotiation. Although differentiated instruction is normatively positioned within the Merdeka Curriculum as a flexible student-centered approach, its implementation in practice is strongly mediated by teachers' interpretations, contextual realities, and structural limitations. Teachers did not apply differentiated instruction according to ideal theoretical formulations proposed by (Suprayogi & Valcke, 2016; Tomlinson, 1999, 2001); instead, they reconstructed instructional practices according to classroom feasibility, student conditions, and post-disaster educational realities. These findings reinforce Borg, (2003) and Pajares, (1992), who argue that pedagogical practice is socially constructed through teacher cognition,

contextual experience, and interpretive negotiation rather than mechanically implemented through policy directives. Consequently, differentiated instruction should not be understood merely as a technical instructional strategy, but as a socially negotiated pedagogical process shaped by contextual educational realities.

The study further reveals the emergence of epistemic distortion, referring to the simplification and reinterpretation of differentiated instruction meanings as a rational adaptive response to contextual educational constraints. Teachers tended to operationalize differentiated instruction through simplified practices such as flexible grouping, task variation, and contextual classroom adaptation because comprehensive implementation was considered difficult within resource-constrained post-disaster schools. Unlike previous studies that frequently interpret instructional simplification as conceptual deficiency or implementation failure (Smale-Jacobse et al., 2019), this study demonstrates that pedagogical simplification reflects adaptive instructional rationality. Teachers simplified differentiated instruction not because they rejected pedagogical principles, but because they sought to sustain meaningful learning continuity within unstable educational conditions. This finding indicates that differentiated instruction implementation cannot be separated from socio-ecological realities that shape teachers' pedagogical decisions and instructional feasibility.

Another important finding concerns the role of structural and technological factors in shaping differentiated instruction implementation. Existing research commonly positions institutional support, teacher training, and technological access as primary determinants of successful differentiated instruction implementation (Scherer et al., 2019). In contrast, this study demonstrates that these factors operate indirectly through teachers' interpretive and adaptive capacities. Teachers functioning within supportive school cultures and collaborative professional environments showed stronger adaptive agency in negotiating instructional practices despite existing structural limitations. Consequently, differentiated instruction implementation should be understood as an interaction between contextual conditions and teachers' pedagogical agency rather than as a purely structural outcome. This finding challenges structural-deterministic perspectives that frequently dominate the discourse on differentiated instruction by emphasizing that teachers are not passive recipients of educational policy but active pedagogical actors who continuously reconstruct instructional practices in response to contextual realities.

The findings further critique technocentric assumptions underlying contemporary educational reform discourse. Although digitalization is strongly emphasized in the Merdeka Curriculum and the Sekolah Penggerak program, technology was not found to be the primary determinant of the implementation of differentiated instruction. Teachers in post-disaster schools relied more heavily on interpersonal pedagogical relationships, contextual instructional flexibility, and adaptive classroom negotiation than on advanced technological systems. This finding aligns with Eikeland, (2022) and

Selwyn, (2016), who argue that technology effectiveness depends largely on contextual adaptation and pedagogical interpretation rather than technological availability itself. Therefore, technology should be positioned as a secondary pedagogical accelerator rather than as a universal solution for differentiated instruction implementation. In post-disaster educational settings characterized by infrastructural instability and unequal technological access, teachers' adaptive pedagogical capacity proved more influential than technological sophistication in sustaining differentiated learning practices.

Cross-case synthesis revealed that differentiated instruction implementation in post-disaster schools develops through the interaction among epistemic distortion, contextual constraints, adaptive agency, and practical simplification. These interactions formed the emergent Contextual Adaptive Differentiation Model (CADM), which conceptualizes differentiated instruction as a socially negotiated and adaptive-contextual pedagogical process. CADM extends classical differentiated instruction theory by repositioning teachers not as procedural implementers of policy but as adaptive pedagogical agents who reconstruct instructional practices according to contextual educational realities. The model also challenges the normative assumption that effective differentiated instruction requires stable infrastructure, comprehensive technological integration, and fully procedural implementation. Instead, the findings demonstrate that differentiated instruction in complex educational environments emerges through adaptive pedagogical negotiation shaped by contextual limitations, reflective interpretation, and practical instructional flexibility. Consequently, differentiated instruction should be understood as a dynamic, negotiated, and context-sensitive pedagogical practice rather than as a universally standardized instructional framework.

D. CONCLUSION

This study concludes that differentiated instruction within the implementation of the Merdeka Curriculum in post-disaster schools develops as an adaptive-contextual pedagogical practice rather than as a linear and normative instructional framework. Teachers' perceptions of differentiated instruction tend to be partial, adaptive, and pragmatic because instructional practices are shaped by contextual realities, structural limitations, pedagogical experiences, and post-disaster socio-ecological conditions. The findings further demonstrate that factors such as school infrastructure, institutional support, and technology access do not directly determine differentiated instruction implementation, but are mediated through teachers' interpretive processes and adaptive agency. Consequently, teachers actively negotiate instructional practices according to contextual feasibility, resulting in pedagogical simplification and adaptive classroom strategies that sustain meaningful learning within constrained educational environments.

Theoretically, this study extends differentiated instruction toward an adaptive-contextual perspective by positioning teachers as adaptive pedagogical agents who reconstruct instructional practices through contextual interpretation and pedagogical negotiation. Practically, the findings suggest the importance of strengthening teachers' adaptive pedagogical capacity, reflective teaching competence, and contextual instructional flexibility rather than focusing solely on procedural training and technology integration. Therefore, educational policymakers and schools should develop more context-sensitive professional development programs that consider socio-ecological educational realities, particularly within resource-constrained and post-disaster schools. Future studies are recommended to explore adaptive-contextual differentiated instruction across broader educational contexts and through longitudinal approaches to examine its long-term implications for teacher professionalism, educational resilience, and student learning outcomes.

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