

Professional Learning Communities and Differentiated Instruction for Slow Learners: A School Action Research in an Indonesian Inclusive Elementary School

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Abstract

Although differentiated instruction is widely endorsed in inclusive education, elementary teachers in Indonesia often lack the pedagogical competence to implement it for slow learners, and conventional one-shot training has failed to close this gap. This study aimed to improve teachers' pedagogical competence in differentiated instruction for slow learners through a Professional Learning Community (PLC) at SD Negeri 016 Sangkulirang, Indonesia. A School Action Research design based on the Kemmis and McTaggart model was employed across two cycles of planning, action, observation, and reflection. Twelve classroom teachers participated in the PLC. Data were collected through classroom observations, semi-structured interviews, document analysis, and teachers' work products using validated observation checklists, interview guides, and document analysis instruments. Credibility was established through technique and source triangulation, member checking, and peer debriefing. Qualitative data were analyzed through data reduction, data display, and conclusion drawing, while quantitative data were analyzed using mean scores, percentages, and gain scores. The findings showed that teachers' overall pedagogical competence rose from a baseline mean of 2.05 (Fair) to 2.69 (Good) in Cycle I and 3.46 (Very Good) in Cycle II. Improvements were most pronounced in reflective teaching practice (2.05 to 3.60) and understanding of slow learners' characteristics (2.10 to 3.55), followed by planning and implementing differentiated instruction and developing adaptive assessment. These gains translated into more inclusive, adaptive, and responsive classroom instruction. The study demonstrates that PLCs offer an effective and sustainable school-based professional development strategy for strengthening inclusive education in elementary schools.

Keywords: Pedagogical Competence; Professional Learning Community; PLC; Differentiated Instruction; Slow Learners

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INTRODUCTION

Inclusive education has become a major policy direction in many countries to ensure equitable access to quality education for all learners, including students with special educational needs (SEN). The fundamental principle of inclusive education is that every learner has the right to participate in meaningful learning experiences within regular classrooms while receiving appropriate instructional support according to individual learning needs (Florian & Black-Hawkins, 2011; Friend & Bursuck, 2019). Consequently, schools are expected not only to provide

physical access but also to ensure that instructional practices accommodate learner diversity through flexible curriculum implementation, adaptive assessment, and responsive teaching strategies (CAST, 2024; Lindner & Schwab, 2025).

In Indonesia, the implementation of inclusive education has continued to expand following national education policies promoting equitable educational services. However, the successful implementation of inclusive education depends largely on teachers' pedagogical competence. Teachers are expected to identify students' learning characteristics, design appropriate instructional adaptations, implement differentiated instruction, and evaluate learning outcomes based on students' individual needs (Friend & Bursuck, 2019; Hasanah et al., 2022). These competencies are particularly important for supporting slow learners, who generally require more time to understand concepts, repeated learning opportunities, concrete learning experiences, and continuous instructional support (Mumpuniarti et al., 2020). Without appropriate pedagogical competence, differentiated learning cannot be implemented effectively, and students' diverse learning needs remain insufficiently addressed (Suprayogi et al., 2017).

Pedagogical competence in inclusive education extends beyond mastery of subject content. It encompasses teachers' ability to understand learner diversity, conduct diagnostic assessment, adapt curriculum and assessment, implement flexible instructional strategies, and continuously reflect on classroom practices (Black & Wiliam, 2018; Lindner & Schwab, 2025). Inclusive Pedagogy proposed by Florian and Black-Hawkins emphasizes that teachers should develop learning environments that support participation and achievement for all students rather than creating separate instructional practices for particular groups of learners (Florian & Black-Hawkins, 2011). Similarly, Tomlinson's theory of differentiated instruction argues that effective teaching should be adapted according to students' readiness, interests, and learning profiles through differentiation of content, process, product, and learning environment (Tomlinson, 2017).

For slow learners, differentiated instruction provides opportunities to learn according to their cognitive characteristics without excluding them from regular classroom activities. Appropriate differentiation includes simplifying learning materials, providing scaffolding, using concrete and visual learning media, allowing flexible learning time, and implementing adaptive assessment (Lindner & Schwab, 2025; Tomlinson, 2017). Such instructional adjustments require teachers to possess strong pedagogical competence and sufficient understanding of inclusive instructional practices (D'Intino & Wang, 2021; Hasanah et al., 2022).

Although differentiated instruction has been widely recommended in inclusive education literature, many studies indicate that teachers still experience considerable challenges in implementing it consistently (Smale-Jacobse et al., 2019; Suprayogi et al., 2017; Yuen et al., 2023). Previous research has reported that teachers frequently encounter difficulties in identifying students' learning needs, conducting diagnostic assessment, modifying instructional materials, designing adaptive assessment, and evaluating differentiated learning outcomes (Lindner & Schwab, 2025; Yuen et al., 2023). Classroom instruction often remains teacher-centered, with identical instructional activities provided for all students regardless of their individual characteristics (Suprayogi et al., 2017). Consequently, students with special educational needs, particularly slow learners, often experience learning barriers that limit their academic participation and achievement (Friend & Bursuck, 2019; Pozas et al., 2021).

One factor contributing to these challenges is the limited availability of sustainable professional development focusing specifically on inclusive pedagogical practices. Conventional teacher training programs are generally conducted as short-term workshops with limited follow-up support and insufficient opportunities for collaborative reflection on authentic classroom problems. Recent studies suggest that sustainable professional development should be collaborative, practice-based, continuous, and directly connected to teachers' daily instructional experiences (Darling-Hammond et al., 2017; Harris & Jones, 2020; Liang et al., 2025).

Professional Learning Community (PLC) has emerged as an effective approach for improving teachers' professional competence through collaborative learning and reflective practice. PLC enables teachers to discuss classroom challenges, analyze students' learning needs, develop instructional strategies collaboratively, observe classroom implementation, and continuously reflect on teaching effectiveness (Hairon et al., 2017; Vescio et al., 2008). Vescio, Ross, and Adams argue that PLC contributes significantly to improving instructional quality because teachers learn collectively from authentic classroom experiences. Likewise, Hargreaves and O'Connor emphasize that collaborative professionalism strengthens teachers' capacity to solve instructional problems through shared responsibility, collective inquiry, and evidence-based reflection (Hargreaves & O'Connor, 2018). Darling-Hammond and colleagues further identify collaborative inquiry, sustained learning, active participation, and classroom relevance as essential characteristics of effective professional (Darling-Hammond et al., 2017; Hudson, 2024).

Within inclusive education, PLC offers opportunities for teachers to strengthen pedagogical competence in implementing differentiated instruction for students with diverse learning needs. Through collaborative lesson planning, peer discussion, reflective dialogue, and shared classroom experiences, teachers can improve their ability to conduct diagnostic assessment, design differentiated learning activities, develop adaptive assessments, and evaluate instructional effectiveness. Therefore, PLC represents a sustainable professional development model that aligns closely with the demands of inclusive education (Liang et al., 2025).

A preliminary needs assessment conducted at SD Negeri 016 Sangkulirang revealed that teachers' pedagogical competence in differentiated instruction remained suboptimal. Teachers experienced difficulties in identifying the learning needs of students with special educational needs, designing differentiated lesson plans, implementing flexible instructional strategies, adapting assessment procedures, and conducting systematic reflective practice. Furthermore, collaborative professional learning activities had not yet been implemented in a structured and continuous manner, limiting opportunities for teachers to improve instructional practices through peer collaboration. These findings indicate a gap between the expectations of inclusive education and the realities of classroom practice.

Although numerous studies have investigated differentiated instruction, inclusive pedagogy, and professional learning communities independently, relatively few have examined the integration of PLC as a school-based professional development strategy to improve teachers' pedagogical competence in implementing differentiated instruction specifically for slow learners within Indonesian elementary inclusive schools (Hairon et al., 2017). This study addresses that gap by integrating collaborative professional learning with differentiated instructional practice through a School Action Research approach (Dulfer et al., 2024; Kemmis et al., 2014).

Therefore, this study aims to improve teachers' pedagogical competence in implementing differentiated instruction for slow learners through the implementation of a Professional Learning Community (PLC) at SD Negeri 016 Sangkulirang. Specifically, the study seeks to enhance teachers' competence in understanding learners' characteristics, designing differentiated instruction, adapting curriculum and assessment, implementing inclusive classroom practices, and engaging in collaborative reflective teaching. The findings are expected to contribute to the growing body of knowledge on sustainable teacher professional development while providing a practical model for strengthening inclusive education in elementary schools.

METHODS

Research Design and Context

This study adopted a pragmatic research paradigm using a School Action Research (SAR) design based on the model developed by Kemmis and McTaggart (2014). The pragmatic paradigm was selected because the study aimed not only to understand educational problems but also to

improve teachers' pedagogical competence through iterative cycles of planning, action, observation, and reflection in authentic school settings. School Action Research was considered appropriate because it enables continuous improvement of educational practice through collaborative inquiry and reflective decision-making.

The study was conducted at SD Negeri 016 Sangkulirang, East Kutai Regency, East Kalimantan Province, Indonesia, an elementary school implementing inclusive education for students with diverse learning needs, including slow learners. The research was carried out from January to March 2026 in two action cycles. Each cycle consisted of four stages: planning, action, observation, and reflection.

Prior to data collection, the research proposal, instruments, and intervention procedures were reviewed and approved by experts in special education, educational management, and educational research methodology. Permission to conduct the study was obtained from the school principal and the local education authority.

Participants and Sampling

The target population consisted of classroom teachers responsible for implementing inclusive education at SD Negeri 016 Sangkulirang. Participants were selected using purposive sampling, as they were directly involved in teaching students with special educational needs and participated in the school's Professional Learning Community (PLC).

The study involved all 12 classroom teachers who participated in the PLC activities. The participants taught in regular elementary classrooms that included students with special educational needs, including slow learners, and were responsible for planning, implementing, and assessing inclusive instruction. Because School Action Research emphasizes improvement within a particular educational setting rather than statistical generalization, the sample size was determined by the total number of teachers meeting the inclusion criteria rather than by statistical power analysis.

The inclusion criteria were: (1) actively teaching at SD Negeri 016 Sangkulirang during the research period, (2) participating in PLC activities throughout both research cycles, and (3) providing informed consent to participate in the study. Teachers who did not participate consistently in PLC activities or were absent during a complete research cycle were excluded from the analysis.

Instruments and Materials

Multiple instruments were employed to ensure comprehensive data collection. The primary quantitative instrument was a Pedagogical Competence Observation Checklist developed based on the Indonesian Teacher Competency Standards, the Inclusive Pedagogy framework (Florian & Black-Hawkins, 2011; Friend & Bursuck, 2019). Differentiated Instruction principles. The checklist comprised five scored items, each representing one competency domain: understanding students' characteristics, planning differentiated instruction, implementing adaptive learning strategies, conducting adaptive assessment, and engaging in reflective practice. Each item was rated on a four-point scale (1 = Poor, 2 = Fair, 3 = Good, and 4 = Very Good). Mean scores were interpreted using equal-width categories: 1.00–1.75 = Poor, 1.76–2.50 = Fair, 2.51–3.25 = Good, and 3.26–4.00 = Very Good.

Qualitative data were collected using semi-structured interview guides, classroom observation protocols, field notes, and document analysis forms for reviewing lesson plans, differentiated teaching materials, assessment documents, and teachers' reflective journals.

The instruments were developed through an extensive literature review and expert consultation. Content validity was established through expert judgment involving three experts in special education, educational management, and educational evaluation. The average content validity index exceeded the acceptable criterion ($CVI > 0.80$). Instrument readability was evaluated through pilot testing with teachers from another inclusive elementary school.

The internal consistency of the observation checklist demonstrated satisfactory reliability

(Cronbach's $\alpha = 0.91$), while inter-rater reliability between two independent observers showed substantial agreement (Cohen's $\kappa = 0.86$).

The intervention consisted of a structured Professional Learning Community (PLC) program including collaborative lesson planning, case discussions, classroom observation, peer feedback, collaborative reflection, and joint development of differentiated instructional materials and adaptive assessment (Hairon et al., 2017; Hudson, 2024).

Procedure and Data Collection

The study was conducted in two action research cycles. During the planning stage, researchers and teachers collaboratively identified instructional challenges, analyzed students' learning needs, designed differentiated lesson plans, and prepared PLC activities. During the action stage, teachers implemented differentiated instruction developed collaboratively through PLC meetings. Each PLC meeting included collaborative lesson planning, peer discussion, classroom implementation, and reflective dialogue. Classroom observations were conducted throughout the intervention. The observation stage involved systematic monitoring of teachers' pedagogical competence using observation checklists, field notes, interviews, and analysis of instructional documents.

During the reflection stage, teachers and researchers jointly evaluated instructional practices, identified strengths and challenges, and formulated improvements for the subsequent cycle. Each research cycle consisted of four PLC meetings conducted weekly, with each session lasting approximately 120 minutes. Classroom observations were conducted during regular teaching sessions throughout the intervention period.

To enhance research trustworthiness, qualitative findings were verified through method triangulation, source triangulation, member checking, and peer debriefing. The researcher acted as a facilitator of PLC activities while minimizing researcher bias through collaborative reflection and the involvement of independent observers.

Data Analysis

Quantitative and qualitative data were analyzed concurrently. Quantitative data were analyzed using IBM SPSS Statistics Version 29. Data cleaning procedures included checking completeness, identifying missing values, and verifying scoring accuracy. Descriptive statistics, including means, percentages, and standard deviations, were calculated to describe teachers' pedagogical competence. Improvement across research cycles was determined using normalized gain (N-gain) analysis and percentage improvement.

Qualitative data were analyzed using thematic analysis following the procedures proposed by Braun and Clarke. Interview transcripts, observation notes, and teaching documents were coded through open coding, category development, theme generation, and interpretation. Coding was independently conducted by two researchers, and discrepancies were resolved through discussion to achieve coding consensus. Qualitative findings were integrated with quantitative results to provide comprehensive interpretations of teachers' professional learning and pedagogical improvement.

Ethical Considerations

This study complied with established ethical standards for educational research. Written informed consent was obtained from all participating teachers before data collection commenced. Participation was entirely voluntary, and participants were informed of their right to withdraw from the study at any stage without penalty.

To protect participants' privacy, all personal identifiers were removed from research records, and pseudonyms were used during data analysis and reporting. Digital research data were stored on password-protected devices accessible only to the research team, while printed documents were kept securely in locked storage. The collected data were used exclusively for research purposes and handled confidentially throughout the study.

RESULTS AND DISCUSSION

Results

Baseline Condition of Teachers' Pedagogical Competence

The preliminary observation was conducted to identify teachers' pedagogical competence in implementing differentiated instruction for slow learners before the Professional Learning Community (PLC) intervention. The observation focused on five competency indicators: understanding students' characteristics, planning differentiated instruction, implementing differentiated learning, developing adaptive assessment, and conducting reflective teaching practices.

The baseline findings revealed that teachers' pedagogical competence remained relatively low, with an overall mean score of 2.05, categorized as Fair. The results indicate that most teachers had not yet mastered essential competencies required to implement differentiated instruction effectively in inclusive classrooms. Teachers generally experienced difficulties in identifying the learning characteristics of slow learners, designing differentiated lesson plans, adapting learning objectives and instructional materials, implementing flexible teaching strategies, and conducting adaptive assessment based on students' individual learning needs.

Table 1. Teachers' Pedagogical Competence Before the PLC Intervention

Competency Indicator	Mean Score	Category
Understanding student characteristics	2,10	Fair
Planning differentiated instruction	2,00	Fair
Implementing differentiated instruction	2,15	Fair
Developing adaptive assessment	1,95	Fair
Reflective teaching practice	2,05	Fair
Overall Mean	2,05	Fair

The observation also showed that classroom instruction remained predominantly teacher-centered. Learning activities, instructional materials, assignments, and assessment procedures were generally identical for all students regardless of their learning readiness, interests, or individual learning profiles. Teachers rarely conducted diagnostic assessment before planning instruction, and lesson plans had not yet incorporated differentiated learning strategies. Similarly, assessment practices mainly relied on written tests with limited opportunities for students to demonstrate learning through alternative assessment methods. These findings confirmed the need for systematic professional development to strengthen teachers' pedagogical competence in inclusive education.

Results of Cycle I

The first cycle focused on introducing teachers to the principles of differentiated instruction through PLC activities. Teachers collaboratively analyzed classroom challenges, discussed the characteristics of slow learners, designed differentiated lesson plans, observed classroom practices, and reflected on instructional implementation. PLC meetings encouraged collaborative problem-solving and facilitated the sharing of instructional experiences among teachers. Following the implementation of Cycle I, teachers' pedagogical competence demonstrated noticeable improvement across all competency indicators. The overall mean score increased from 2.05 at baseline to 2.69, representing the Good category.

Table 2. Teachers' Pedagogical Competence in Cycle I

Competency Indicator	Mean Score	Cycle I
Understanding student characteristics	2,10	2,75
Planning differentiated instruction	2,00	2,65
Implementing differentiated instruction	2,15	2,70
Developing adaptive assessment	1,95	2,55
Reflective teaching practice	2,05	2,80
Overall Mean	2,05	2,69

The greatest improvement during Cycle I occurred in teachers' reflective teaching practices. Regular PLC discussions enabled teachers to evaluate instructional implementation

collaboratively, identify strengths and weaknesses, and formulate practical solutions for subsequent lessons. Teachers also demonstrated better understanding of slow learners' learning characteristics and began incorporating differentiated instructional activities into lesson planning.

Despite these improvements, classroom observations indicated several remaining challenges. Some teachers continued to experience difficulty in modifying curriculum objectives according to students' readiness levels. Adaptive assessment practices also remained inconsistent, as teachers were still becoming familiar with developing assessment instruments suitable for students with diverse learning needs. Furthermore, differentiation was primarily limited to learning activities, while differentiation of assessment and instructional products had not yet been fully implemented.

Reflection conducted at the end of Cycle I identified several priority areas for improvement, including strengthening teachers' competence in curriculum adaptation, improving adaptive assessment design, and enhancing collaborative reflection through more structured PLC activities.

Results of Cycle II

Based on the reflection from Cycle I, several improvements were incorporated into the second cycle. PLC activities emphasized collaborative lesson study, peer coaching, classroom observation, and reflective dialogue supported by authentic classroom evidence. Teachers worked collaboratively to revise lesson plans, develop differentiated instructional materials, design adaptive assessments, and share best practices for supporting slow learners.

The implementation of Cycle II produced substantial improvements across all competency indicators. The overall mean score increased to 3.46, categorized as Very Good.

Table 3. Teachers' Pedagogical Competence in Cycle II

Competency Indicator	Cycle I	Cycle II
Understanding student characteristics	2,75	3,55
Planning differentiated instruction	2,65	3,45
Implementing differentiated instruction	2,70	3,50
Developing adaptive assessment	2,55	3,35
Reflective teaching practice	2,80	3,60
Overall Mean	2,69	3,46

Teachers demonstrated greater confidence in identifying students' individual learning needs through diagnostic assessment and classroom observation. Lesson plans increasingly reflected differentiated learning objectives, flexible instructional methods, varied learning materials, and multiple forms of assessment. Teachers also implemented more diverse instructional strategies, including flexible grouping, scaffolding, visual learning supports, individualized learning tasks, and adaptive instructional media designed to accommodate the learning characteristics of slow learners.

Adaptive assessment practices showed marked improvement during Cycle II. Teachers began employing multiple assessment techniques, including classroom observation, performance assessment, portfolios, project-based assignments, and individualized learning tasks. Assessment was no longer limited to measuring academic achievement but also considered students' learning progress, participation, and individual development.

Reflective teaching practices became an integral component of PLC implementation. Teachers actively participated in collaborative discussions, exchanged instructional experiences, analyzed classroom evidence, and provided constructive peer feedback. This collaborative culture strengthened teachers' confidence in implementing differentiated instruction and encouraged continuous professional learning.

Overall Improvement Across Research Cycles

The comparison of teachers' pedagogical competence across the research cycles

demonstrates a consistent upward trend following the implementation of the Professional Learning Community.

Table 4. Improvement of Teachers' Pedagogical Competence Across Research Cycles

Research Phase	Mean Score	Category
Baseline	2,05	Fair
Cycle I	2,69	Good
Cycle II	3,49	Very Good

Overall, the findings indicate progressive improvement from the baseline condition through Cycle II. The mean score increased by 0.64 points from the baseline to Cycle I and by 0.80 points from Cycle I to Cycle II, resulting in a total improvement of 1.44 points throughout the study. This trend suggests that teachers' pedagogical competence improved consistently as PLC activities became more systematic and collaborative.

In addition to quantitative improvements, qualitative findings from classroom observations, interviews, reflective journals, and document analysis indicated meaningful changes in teachers' instructional practices. Before the intervention, teachers generally used uniform strategies and identical learning activities for all students. After participating in the PLC, teachers increasingly differentiated instruction according to students' readiness, learning profiles, and individual needs. For example, lesson-plan and classroom records documented a shift from a single whole-class task toward flexible grouping, scaffolding, and visual supports based on learners' readiness. In a second example, teachers supplemented written tests with portfolios, performance assessments, and individualized assignments, then discussed this evidence during PLC reflection to plan subsequent instruction.

These findings indicate that the Professional Learning Community successfully fostered continuous professional learning while promoting meaningful changes in classroom practice. The observed improvements across all competency indicators provide empirical evidence that collaborative professional development can effectively strengthen teachers' pedagogical competence in implementing differentiated instruction for slow learners within inclusive elementary school settings.

Discussion

This School Action Research demonstrates that the implementation of a Professional Learning Community (PLC) effectively improved teachers' pedagogical competence in implementing differentiated instruction for slow learners in an inclusive elementary school. Quantitative findings showed a consistent increase in teachers' pedagogical competence, with the overall mean score improving from 2.05 (Fair) in the baseline condition to 2.69 (Good) in Cycle I and 3.49 (Very Good) in Cycle II. These improvements were reinforced by qualitative evidence from classroom observations, interviews, reflective journals, and document analysis, indicating meaningful changes in teachers' instructional practices. Teachers became more capable of identifying students' learning needs, planning differentiated instruction, implementing adaptive teaching strategies, conducting appropriate assessment, and engaging in collaborative reflection. These findings suggest that PLC functions not only as a professional development strategy but also as a mechanism for transforming instructional beliefs and classroom practices in inclusive education.

The improvement can largely be explained by the characteristics of PLC itself. Unlike conventional professional development that relies primarily on workshops or seminars, PLC emphasizes continuous, collaborative learning embedded within daily teaching practice. Teachers jointly analyzed classroom challenges, discussed learner characteristics, designed differentiated lesson plans, observed classroom implementation, and reflected on instructional effectiveness. This collaborative inquiry enabled teachers to connect theory with practice while continuously refining their instructional competence. These findings support [Darling-Hammond et al. \(2017\)](#), who argue that sustainable professional development is most effective when

teachers learn collaboratively while solving authentic instructional problems.

One of the most significant improvements was teachers' ability to understand the characteristics of slow learners. Prior to the intervention, lesson planning was largely curriculum-oriented, with limited attention to learner readiness or individual differences. Diagnostic assessment was rarely conducted, resulting in uniform instruction that failed to accommodate learner diversity. Following PLC implementation, teachers became more competent in recognizing differences in learning pace, prior knowledge, readiness, and learning profiles. Classroom observations and diagnostic information increasingly served as the basis for instructional planning.

These findings support the concept of Inclusive Pedagogy proposed by [Florian and Black-Hawkins \(2011\)](#), which emphasizes that learner diversity should be viewed as a normal characteristic of every classroom rather than as a problem requiring separate educational provision. Teachers gradually shifted from focusing on students' limitations to recognizing diversity as the foundation for instructional planning. This change reflects an important transformation in teachers' pedagogical beliefs that supports successful inclusive education.

The findings are also consistent with [Tomlinson \(2017\)](#) theory of differentiated instruction, which emphasizes adapting instruction according to students' readiness, interests, and learning profiles. Teachers who understand learner characteristics are better able to select appropriate instructional strategies, organize flexible learning experiences, and design meaningful assessments. Similar conclusions were reported by [Pozas et al. \(2021\)](#) who found that teachers' competence in identifying learner diversity develops through sustained collaboration and reflective professional learning.

Qualitative findings further revealed that PLC encouraged teachers to share classroom experiences, discuss individual student cases, and collaboratively develop instructional solutions. Rather than depending solely on theoretical knowledge from formal training, teachers constructed professional knowledge through collective inquiry. As a result, they became more confident in making pedagogical decisions while adopting a more responsive approach to inclusive teaching.

Another important finding concerns teachers' professional identity. As PLC activities progressed, teachers increasingly perceived themselves as collaborative professionals responsible for improving instructional quality. Peer observation, constructive feedback, and reflective dialogue gradually became accepted components of professional practice. This cultural transformation is particularly significant because sustainable improvement in inclusive education depends not only on individual competence but also on collaborative professional cultures within schools.

Improvement in Planning and Implementing Differentiated Instruction

A major finding of this study is the substantial improvement in teachers' competence in planning and implementing differentiated instruction. Before the intervention, lesson planning mainly focused on curriculum completion using identical instructional strategies, learning materials, and assessment procedures for all students. Consequently, slow learners frequently experienced difficulties participating actively because instruction did not correspond with their learning readiness.

Following PLC implementation, teachers increasingly developed differentiated lesson plans incorporating flexible learning objectives, adaptive instructional materials, varied learning activities, and differentiated assessment strategies. They became more capable of organizing flexible grouping, providing scaffolding, utilizing concrete instructional media, and adjusting learning tasks according to students' readiness levels. These changes indicate that PLC facilitated not only conceptual understanding but also practical classroom implementation.

These findings align closely with [Tomlinson \(2017\)](#) framework, which identifies four essential dimensions of differentiated instruction: content, process, product, and learning environment. Throughout the research cycles, teachers progressively incorporated these components into

classroom practice, demonstrating that PLC effectively translated theoretical principles into instructional decisions.

The findings also reflect the principles of Universal Design for Learning (CAST, 2024), which advocate providing multiple means of engagement, representation, and expression. Although PLC primarily emphasized differentiated instruction, teachers increasingly adopted instructional practices consistent with UDL, including visual learning materials, collaborative activities, flexible assessment methods, and varied instructional media. These approaches reduced learning barriers while maintaining high academic expectations for all learners.

Teachers also demonstrated greater competence in selecting instructional strategies suitable for slow learners. Whole-class teacher-centered instruction gradually shifted toward scaffolding, guided practice, cooperative learning, peer tutoring, and individualized support. These strategies encouraged greater student participation while providing assistance according to individual learning needs. Such flexibility represents an essential characteristic of effective inclusive education.

These results support previous studies by Smale-Jacobse et al. (2019) and Suprayogi et al. (2017), which reported that sustained collaborative professional learning significantly improves teachers' capacity to implement differentiated instruction. Within the PLC, collaborative lesson planning, peer observation, and reflective dialogue strengthened teachers' confidence while reducing uncertainty associated with instructional innovation.

Equally important, teachers' instructional beliefs changed throughout the intervention. Initially, differentiation was perceived as additional work that increased instructional complexity. However, repeated participation in PLC activities enabled teachers to view differentiated instruction as an integral component of effective teaching rather than a specialized approach for students with special educational needs. This shift in professional beliefs is fundamental because sustainable instructional improvement requires changes in pedagogical thinking as well as classroom practice.

Improvement in Curriculum Adaptation and Adaptive Assessment

Another significant finding concerns teachers' improved competence in curriculum adaptation and adaptive assessment. Before PLC implementation, curriculum delivery and assessment were largely standardized for all students, often exceeding the learning readiness of slow learners. Assessment focused primarily on written examinations that emphasized academic achievement rather than individual learning progress.

Following the intervention, teachers became more competent in adapting curriculum objectives while maintaining alignment with national standards. They prioritized essential learning outcomes, sequenced learning according to students' readiness, and provided scaffolding that enabled gradual achievement of expected competencies. Curriculum adaptation therefore shifted from curriculum-oriented instruction toward learner-oriented teaching.

These findings support Friend and Bursuck (2019) who argue that curriculum adaptation should promote equitable access to learning while maintaining meaningful educational expectations. Similarly, Mumpuniarti et al. (2020) emphasizes that adaptive curriculum implementation should remove barriers to participation without lowering educational standards.

Improvement was equally evident in adaptive assessment. Teachers increasingly utilized classroom observation, portfolios, performance assessment, projects, anecdotal records, and individualized assignments in addition to written tests. These approaches enabled more comprehensive evaluation of students' learning progress while providing valuable information for instructional decision-making.

Consistent with Lindner and Schwab (2025) and Black and Wiliam (2018) teachers increasingly used assessment evidence to modify instructional strategies and provide individualized support. Collaborative reflection within PLC meetings further strengthened assessment literacy as teachers jointly analyzed student performance, revised assessment

instruments, and discussed instructional improvements based on assessment findings.

Professional Learning Community as Sustainable Professional Development

Perhaps the most important contribution of this study is demonstrating the effectiveness of PLC as a sustainable model of teacher professional development. Unlike traditional professional development programmes, PLC integrates continuous learning into teachers' daily instructional practice.

These findings support [Vescio et al. \(2008\)](#) who concluded that PLC improves teaching quality through collaborative inquiry and reflective dialogue. Similarly, [Hargreaves and O'Connor \(2018\)](#) argue that sustainable educational improvement depends on collaborative professionalism characterized by trust, shared responsibility, and continuous professional inquiry. Throughout this study, teachers gradually developed these characteristics as they collaborated in lesson planning, classroom observation, and reflective discussion.

The PLC also reflected the characteristics of effective professional development identified by [Darling-Hammond et al. \(2017\)](#) including content focus, collaboration, active learning, coaching, feedback, and sustained duration. Recent studies by [Hiron et al. \(2017\)](#) and [Harris and Jones \(2020\)](#) likewise demonstrate that PLC strengthens teacher collaboration, instructional innovation, and organizational learning.

Importantly, PLC contributed not only to teachers' pedagogical competence but also to school culture. Teachers increasingly regarded instructional challenges as shared responsibilities rather than individual problems. Open classroom observation, peer coaching, and collaborative reflection gradually became part of routine professional practice. Consequently, professional learning evolved into an ongoing organizational process that supports continuous school improvement.

Implications

The findings have several important implications for inclusive education. First, improving teachers' pedagogical competence requires continuous school-based professional learning rather than isolated workshops. PLC enables teachers to integrate professional learning into daily instructional practice through collaborative lesson planning, classroom observation, and reflective dialogue.

Second, successful PLC implementation depends on strong instructional leadership. School principals play a crucial role in facilitating collaboration, providing professional support, and creating a school culture characterized by trust and shared responsibility.

Third, differentiated instruction should be viewed as a fundamental component of inclusive education rather than an approach designed exclusively for students with disabilities. Learner diversity exists in every classroom, and responsive instruction benefits all students.

The findings also suggest that teacher education programmes should provide greater opportunities for collaborative inquiry, lesson study, peer mentoring, and classroom-based reflection, as these approaches more effectively strengthen teachers' pedagogical competence than lecture-based professional development alone.

Research Contribution

This study contributes to the literature in four important ways. First, it provides empirical evidence that PLC effectively improves teachers' pedagogical competence in implementing differentiated instruction for slow learners within Indonesian inclusive elementary schools.

Second, the study integrates several complementary theoretical perspectives, including Differentiated Instruction ([Tomlinson, 2017](#)), Inclusive Pedagogy ([Florian & Black-Hawkins, 2011](#)), Collaborative Professionalism ([Hargreaves & O'Connor, 2018](#)), and Effective Professional Development ([Darling-Hammond et al., 2017](#)), thereby demonstrating how collaborative learning supports practical implementation of inclusive education.

Third, the study extends international research by providing evidence from the Indonesian

educational context, where inclusive education continues to develop amidst diverse educational challenges.

Finally, the use of School Action Research based on the [Kemmis and McTaggart \(2014\)](#) model illustrates how cyclical planning, action, observation, and reflection can simultaneously support instructional improvement and generate evidence for educational decision-making.

Limitations and Recommendations

Several limitations should be acknowledged. The study was conducted in a single inclusive elementary school involving a limited number of teachers, limiting the generalizability of findings. The intervention was implemented over only two research cycles, making it difficult to evaluate long-term sustainability. Furthermore, the study focused primarily on teachers' pedagogical competence rather than directly measuring students' academic or socio-emotional outcomes.

Future research should therefore examine the long-term sustainability of PLC, involve multiple schools across different educational contexts, investigate the relationship between teacher competence and student outcomes, and explore the integration of digital technologies, online collaboration, and artificial intelligence within professional learning communities.

Overall, this study demonstrates that Professional Learning Community represents a sustainable and effective strategy for strengthening teachers' pedagogical competence in differentiated instruction for slow learners. Through continuous collaboration, reflective inquiry, and evidence-based instructional improvement, PLC enables teachers to translate inclusive education principles into responsive classroom practice while fostering collaborative professionalism that supports long-term school improvement.

CONCLUSION

This study concludes that the implementation of a Professional Learning Community (PLC) effectively improved teachers' pedagogical competence in implementing differentiated instruction for slow learners at SD Negeri 016 Sangkulirang. The School Action Research conducted through two cycles demonstrated consistent improvements in teachers' ability to understand the characteristics of students with special educational needs, design and implement differentiated instruction, adapt the curriculum and assessment, and engage in collaborative reflective practice. The progressive increase in teachers' pedagogical competence across the research cycles indicates that continuous, school-based professional learning provides meaningful opportunities for teachers to translate inclusive education principles into responsive classroom practices.

The findings further demonstrate that PLC serves not only as a professional development strategy but also as a collaborative learning culture that promotes shared responsibility, reflective inquiry, peer support, and evidence-based instructional improvement. Through collaborative lesson planning, classroom observation, and reflective discussion, teachers became more confident and competent in responding to learner diversity while creating more inclusive and adaptive learning environments for slow learners.

This study contributes to the growing body of knowledge on inclusive education by providing empirical evidence that integrating differentiated instruction with Professional Learning Communities constitutes an effective approach to strengthening teachers' pedagogical competence within elementary schools. The findings have practical implications for school leaders and education policymakers, suggesting that sustainable, school-based collaborative professional development should become an integral component of efforts to improve the quality of inclusive education. Future research is recommended to examine the long-term sustainability of PLC implementation and its impact on students' academic achievement, learning engagement, and socio-emotional development across broader educational contexts.

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