

The Implementation of Learning Community Culture as a Strategy to Accelerate Differentiated Deep Learning

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ABSTRACT

This study examined how Learning Community (Komunitas Belajar/KomBel) culture at SMAN 1 Bagan Sinembah contributed to accelerating differentiated deep learning. The study was motivated by the PLC Lite phenomenon, in which learning community activities were conducted formally but had not yet produced meaningful professional collaboration among teachers. A qualitative approach with a single embedded case study design was employed. Data were collected through participatory observation, semi-structured in-depth interviews, and document analysis involving teachers, the KomBel coordinator, and the principal selected purposively. Data were analyzed using Miles, Huberman, and Saldana's interactive thematic model. The findings show that KomBel functions as a trust-based professional learning ecosystem through reflective collaboration, student data utilization, and co-creation of differentiated teaching materials. Differentiated instruction produced multidimensional effects on students, especially affective gains such as self-confidence and intrinsic motivation before cognitive improvement. The sustainability of KomBel requires both systemic institutional support and an authentic collaborative culture.

Informasi Artikel

Kata Kunci:

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ABSTRAK

Penelitian ini mengkaji bagaimana budaya Komunitas Belajar (KomBel) di SMAN 1 Bagan Sinembah berkontribusi dalam mempercepat pembelajaran mendalam berdiferensiasi. Penelitian ini dilatarbelakangi oleh fenomena PLC Lite, yaitu kegiatan komunitas belajar yang dilaksanakan secara formal tetapi belum menghasilkan kolaborasi profesional yang bermakna di antara guru. Penelitian ini menggunakan pendekatan kualitatif dengan desain studi kasus tunggal terpancang. Data dikumpulkan melalui observasi partisipatif, wawancara mendalam semi-terstruktur, dan analisis dokumen yang melibatkan guru, koordinator KomBel, dan kepala sekolah yang dipilih secara purposif. Data dianalisis menggunakan model tematik interaktif Miles, Huberman, dan Saldaña. Hasil penelitian menunjukkan bahwa KomBel berfungsi sebagai ekosistem pembelajaran profesional berbasis kepercayaan melalui kolaborasi reflektif, pemanfaatan data siswa, dan penciptaan bersama bahan ajar berdiferensiasi. Pembelajaran berdiferensiasi menghasilkan dampak multidimensional bagi siswa, terutama peningkatan aspek afektif seperti kepercayaan diri dan motivasi intrinsik sebelum peningkatan kognitif. Keberlanjutan KomBel memerlukan dukungan kelembagaan yang sistemik sekaligus budaya kolaboratif yang autentik.

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1. Introduction

The transformation of the global educational paradigm in the twenty-first century requires a fundamental shift from conventional teacher-centered instruction toward learning that emphasizes depth of understanding and the holistic development of student competencies. This shift aligns with the vision of deep learning in education, which goes beyond the mere transfer of knowledge and includes the dimensions of mindful, meaningful, and joyful learning [1]. In Indonesia, the urgency of this transformation has become increasingly evident through the establishment of the Merdeka Curriculum as a national strategic policy that emphasizes individual development grounded in progressivism, constructivism, and humanism [2].

Theoretically, achieving deep learning within the framework of the Merdeka Curriculum requires the effective implementation of differentiated instruction. [3], in *The Differentiated Classroom*, emphasizes that educators must proactively adjust curriculum, instructional methods, and learning resources to respond to students' diverse readiness, interests, and learning profiles. [4] identified that differentiated instruction significantly improves student engagement and academic achievement among learners from diverse backgrounds. Furthermore, [3] argue that consistent implementation of differentiation contributes to students' intrinsic motivation and higher-order thinking skills.

Learning Community (Komunitas Belajar/KOMBEL) is essentially a space in which teachers no longer struggle alone. In practice, many teachers face multiple pressures simultaneously: responding to curriculum changes, designing differentiated instruction, and preparing deep learning that requires strong conceptual understanding. The experience of SMAN 1 Bagan Sinembah shows that when teachers share problems and ideas together, the solutions that emerge are much richer than those produced when teachers work in isolation. This is consistent with the basic principle of professional learning communities proposed by DuFour [6], namely that the collective power of collaborating teachers far exceeds the capacity of individuals working alone.

Although KOMBEL activities at SMAN 1 Bagan Sinembah have been conducted regularly, their implementation has not been fully optimal. Teachers attend sessions without meaningful engagement; discussions remain superficial, deep reflection is absent, and no real change is carried into classroom practice. This condition is referred to by [5] as "PLC Lite", a community that exists structurally but has lost the genuine spirit of collaboration. What is needed is not merely the structure of KOMBEL, but the culture of KOMBEL: an ecosystem of meaningful and reflective collaboration that has a direct impact on the quality of classroom learning.

At the national level, the 2022 PISA results showed a decline in Indonesia's literacy scores by 12 to 13 points compared with the previous period [6]. At the micro level, [7] found that teachers' skill level in effectively implementing differentiated instruction remained low, at only 42%. Previous studies on KOMBEL and PLC in Indonesia have generally focused on the evaluation of policy implementation at the macro level. However, few studies have deeply explored how building a collaborative culture within KOMBEL can accelerate teachers' capacity to design differentiated deep learning. This gap forms the focus of the present study.

DuFour's grand theory of PLC [8] emphasizes three core

principles of an authentic learning community: (1) a focus on student learning, (2) a systematic culture of teacher collaboration, and (3) an orientation toward measurable results. Vescio, Ross, and Adams [9], in *Teaching and Teacher Education*, demonstrated that PLCs implemented with high fidelity consistently improve the quality of teaching practice and student learning outcomes. Therefore, this study aimed to analyze in depth how the implementation of Learning Community (KOMBEL) culture can serve as an acceleration strategy for realizing differentiated deep learning in the classroom.

The research questions were as follows: (1) What is the current condition of KOMBEL implementation at SMAN 1 Bagan Sinembah in supporting the improvement of learning quality? (2) How does the dynamics of collaborative interaction within KOMBEL contribute to improving teachers' competence in designing differentiated instruction? (3) How does deep learning occur in the classroom as a result of the implementation of differentiated instruction? (4) What obstacles are encountered, and what strategies can strengthen an effective KOMBEL culture?

The objectives of this study were: (1) to analyze the dynamics of professional interaction among teachers in KOMBEL; (2) to examine the contribution of collaborative discussion in KOMBEL to teachers' competency development; (3) to identify variations in instructional strategies generated through KOMBEL activities; and (4) to formulate an effective model for strengthening KOMBEL culture as an acceleration strategy for differentiated deep learning.

2. Method

This study used a qualitative approach with a single embedded case study design. This design was selected because the study aimed to understand a socio-educational phenomenon in depth within its real context, namely the dynamics of teacher interaction in KOMBEL and its impact on classroom learning practices. As [10] states, case study design is most appropriate when research questions focus on how and why a phenomenon occurs in its natural context. The underlying paradigm was constructive interpretivism [11], which views reality as a social construction understood through the perspectives of its actors.

The study was conducted at SMAN 1 Bagan Sinembah, Rokan Hilir Regency, Riau. The site was selected based on four considerations: (a) policy relevance, as the school had fully implemented the Merdeka Curriculum; (b) phenomenon representation, as there were empirical indications that KOMBEL implementation was still developing; (c) the researcher's accessibility for prolonged engagement; and (d) a socio-geographical context that reflects the realities of many Indonesian schools, thereby increasing the transferability of the findings.

Research participants were determined using purposive sampling [12] and consisted of three categories of informants: (1) subject teachers (approximately six to eight teachers) as the main participants, who had actively participated in KOMBEL for at least the previous semester and taught subjects in which differentiated instruction had been implemented; (2) one to two KOMBEL coordinators or facilitators as key informants who understood the dynamics of community management; and (3) one principal as an informant at the policy level. The number of informants could develop according to the principle of theoretical

saturation [13].

Data were collected through methodological triangulation involving three complementary techniques: (1) participant observation of KOMBEL sessions and classroom learning processes, recorded in structured observation sheets and field notes; (2) semi-structured in-depth interviews with all informants, recorded and transcribed verbatim; and (3) document analysis covering KOMBEL minutes, differentiated teaching modules, lesson plans or teaching modules, formative assessment results, and school policy documents related to KOMBEL.

Data were analyzed using the interactive thematic analysis model of Miles, Huberman, and [12], which consists of three simultaneous components: (1) data condensation, (2) data display, and (3) conclusion drawing and verification. Data trustworthiness was ensured using Lincoln and Guba's four criteria [14]: (1) credibility through source and method triangulation and member checking; (2) transferability through thick description; (3) dependability through an audit trail; and (4) confirmability through researcher reflexivity.

3. Results and Discussion

This study was conducted at SMAN 1 Bagan Sinembah, Rokan Hilir Regency, Riau Province. Data were obtained through in-depth semi-structured interviews with six groups of informants: the KomBel coordinator, the vice principal for curriculum affairs, the principal, the guidance and counseling teacher, five subject teachers, and students. The application of Miles, Huberman, and Saldana's interactive thematic analysis model (2014) produced six main themes that were mutually reinforcing and consistently appeared across data sources.

3.1 Planning and Implementation Mechanisms of Learning Community Sessions

The first finding indicates that the success of KomBel in

encouraging changes in teaching practice relies on the quality of session planning based on teachers' real needs. The KomBel coordinator explained that the mapping of challenges was carried out through reflection questionnaires and classroom observation results before session themes were determined. This approach made each session contextual, addressing problems genuinely faced by teachers rather than merely following a top-down agenda.

The session structure consisted of four sequential stages: (1) reflective opening, in which teachers shared obstacles or experiences from the previous week; (2) core learning session involving article discussions, video viewing, or teaching simulations; (3) sharing of good practices by one or two teachers who had tried certain strategies in their classrooms; and (4) closing through the formulation of action commitments to be implemented before the next meeting. The vice principal for curriculum affairs added that the KomBel schedule had been included in the official academic calendar, giving the program legitimacy equal to regular learning activities. This pattern indicates institutional embedding, in which an innovation becomes integrated into the organizational work system and is no longer vulnerable to personnel changes.

3.2 Learning Community as an Incubation Space for Differentiated Instruction

All teacher informants consistently stated that KomBel served as a real catalyst for implementing differentiated instruction. Before actively participating in KomBel, most teachers admitted that their instructional designs tended to be uniform, with one strategy applied to all students without considering differences in readiness, interests, or learning styles. Through structured collegial discussions, teachers gradually developed four dimensions of differentiation. Table 1 summarizes the concrete strategies developed through the KomBel forum.

Table 1 Differentiation strategies developed through the Learning Community

Differentiation Dimension	Subject	Concrete Strategy	Data Source
Content	Chemistry, Mathematics	Three-level tiered assignments (basic-advanced-enrichment)	Teacher Interview Inf. 1 & 4
Process	Economics, Physical Education	Jigsaw learning; flexible groups based on readiness	Teacher Interview Inf. 2 & 4
Product	English, Indonesian Language	Tic-tac-toe choice board; written/video/oral output options	Teacher Interview Inf. 3 & 5
Environment	Sociology	Independent, collaborative, and discussion learning zones in the classroom	Teacher Interview Inf. 5

3.3 Use of Student Data as the Foundation for Collective Planning

One distinctive feature of KomBel at this school was the use of student learning data as the starting point for discussion, rather than merely as material for routine reporting. The KomBel coordinator described a practice called collective data discussion, in which teachers jointly analyzed assessment results to identify patterns: groups of students who had achieved competency, those who needed enrichment, and those who required special intervention. This approach shifted the orientation of the forum from individual evaluation to collective problem solving.

The role of the guidance and counseling teacher in this forum was unusual but proved strategic. Student psychological profile data, including sociometry results, learning style questionnaires,

and counseling notes, were presented in a structured manner after anonymization. In this way, subject teachers gained a much more comprehensive picture of their students' conditions before designing differentiation strategies. This cross-role collaboration produced adaptations that would not have been achieved through conventional pathways. For example, a student who was nearly recommended for grade retention because of rarely submitting assignments turned out to have difficulty writing but was highly expressive verbally. After the teacher provided the option of submitting assignments in the form of short audio or video recordings, the student's engagement increased significantly and consistently.

3.4 Impact on Student Engagement and Learning Experience

Students' perspectives provided independent confirmation of findings from adult informants. Students reported direct changes in the way teachers taught, from uniform lecturing patterns to learning that provided choices. Analysis of students' narratives revealed changes in engagement across four dimensions simultaneously: cognitive, affective, behavioral, and social. Table 2 summarizes these indicators of engagement based on teachers' and students' perspectives.

It is worth noting that the affective dimension appeared most dominant in students' narratives. The feeling of being recognized as an individual, rather than merely as a member of a class, preceded and became the foundation for subsequent cognitive changes. This finding is consistent with Tomlinson [3], who argues that effective differentiation works first at the relational level before influencing academic achievement.

Table 2 Dimensions of student engagement after the implementation of differentiation

Dimension	Indicators from Teachers' Perspective	Experiences Reported by Students
Cognitive	Deeper questions; connections to real life	Understanding materials through ways that match their learning styles
Affective	Increased self-confidence and intrinsic motivation	Feeling understood, valued, and regarded as important individuals
Behavioral	Active participation in and outside class	Completing assignments voluntarily in self-selected formats
Social	More inclusive interaction across ability levels	Learning from peers' perspectives; no one feels isolated

3.5 Improvement of Teachers' Pedagogical Competence through Collegial Learning

All teacher informants agreed that the improvement in pedagogical competence they experienced did not come from external formal training, but from authentic collegial learning that occurred within the KomBel forum. This finding reinforces Darling-Hammond, Hyler, and Gardner's argument [15] that context, not merely training content, is a determining factor in the effectiveness of teacher professional development. Five dimensions of competence development were identified from the interviews: the ability to design student-centered learning, skills in managing diversity in heterogeneous classrooms, the courage to innovate with new methods, the capacity for systematic self-reflection, and competence in integrating technology as a pedagogical tool.

3.6 Implementation Barriers and Sustainability Strategies

Although the positive impacts of KomBel were consistently identified, this study also revealed layered implementation barriers involving structural factors (limited systemic policy), institutional factors (limited digital infrastructure), situational factors (large class sizes), personal factors (heavy administrative burdens), and psychological factors (resistance to change, especially among senior teachers). These barriers did not stand alone but interacted with and reinforced one another.

Various adaptive strategies were developed by the school to respond to these barriers. Session duration was limited to a maximum of ninety minutes so as not to add to teachers' workload. Senior teachers with rich experience were not treated as training objects but were positioned as resource persons and facilitators, thereby transforming their resistance into productive involvement. A rotating facilitator system was implemented to distribute leadership while keeping the agenda dynamic. The principal, especially in the early formation phase, deliberately shared vulnerability and imperfection in the forum, building a psychologically safe culture for learning from failure.

3.7 Discussion

The findings of this study confirm and extend theoretical understanding of professional learning communities as instruments of pedagogical transformation. The discussion is organized around the following five main lines of argument.

First, KomBel functions as a trust-based ecosystem of change. The PLC literature consistently places psychological safety as a prerequisite for meaningful collaboration [5]. The findings at SMAN 1 Bagan Sinembah empirically strengthen this claim: substantial changes in teaching practice did not emerge from formal training sessions, but from informal forums that allowed teachers to share failures without the risk of judgment. The structured sharing protocol that encouraged teachers to disclose what had been tried, what the results were, and what would be changed was not merely a facilitation technique, but a consciously and consistently built architecture of trust.

Second, differentiation emerged as a product of collaboration, not merely as an individual capability. Before participating in KomBel, teachers reported difficulty implementing differentiation consistently because they perceived it as an additional burden to be carried alone. After KomBel was established, differentiated designs became collective products: teaching modules were designed together, tried out in each classroom, and then refined collaboratively based on student data feedback. This process reflects what [16] call collective professional capital, in which a school's pedagogical capacity does not depend only on its best teachers but on the institution's ability to distribute pedagogical knowledge to all members of the community.

Third, the mechanism of change operated first through a cultural pathway. Cross-informant analysis revealed that KomBel worked through cultural change before producing measurable academic impacts. The earliest change was a shift in how teachers talked about their students: from fixed categorical language, such as "this student simply cannot do it", toward possibility-oriented language, such as "what approach have we not yet tried for this student?" This linguistic shift represents an epistemic shift from a fixed mindset to a growth mindset in [17], reinforcing the argument that effective pedagogical interventions must address the hidden belief structures behind practice, not only technical procedures.

Fourth, data and local context played important roles in personalizing professional development. The integration of psychosocial data from the guidance and counseling teacher into the learning planning forum created what may be called holistic profile-based differentiation, namely differentiation that considers not only academic readiness but also emotional

conditions, learning styles, specific barriers, and students' social contexts. The geographical context of SMAN 1 Bagan Sinembah as a peri-urban school with limited digital infrastructure also provides an important dimension of transferability: the fact that meaningful pedagogical transformation can occur by relying on interprofessional collaboration, rather than sophisticated technology, indicates that this KomBel model has the potential to be replicated in many Indonesian school contexts.

Fifth, sustainability requires a shift from individual commitment to systemic institutionalization. A KomBel program that relies solely on the enthusiasm of a particular coordinator or principal risks stagnation when personnel changes occur. This finding is consistent with [18], who warn that PLC sustainability requires institutional embeddedness, not merely personal commitment. Integrating KomBel into school work plans and medium-term school development plans, allocating a specific budget, and establishing periodic reporting systems are critical steps that need to be maintained. However, formalization without the development of an authentic culture risks turning KomBel into a bureaucratic routine that loses its collaborative spirit, an irony that must be anticipated by every school seeking to institutionalize learning communities.

4. Conclusion

This study aimed to examine in depth how the implementation of Learning Community (KomBel) culture at SMAN 1 Bagan Sinembah contributed to accelerating differentiated deep learning in the classroom. Based on thematic analysis of interview data from six groups of informants, this study produced three interrelated main conclusions.

First, KomBel proved to function as a sustainable professional learning ecosystem that encouraged real transformation in teaching practice. This transformation did not occur linearly or instantly, but through an accumulative process that began with changes in teachers' perspectives on student diversity, continued with changes in instructional design, and ultimately had a direct impact on students' classroom learning experiences. The core mechanisms supporting this transformation included reflective collaboration in psychologically safe forums, the use of student data as a basis for collective planning, and a system of co-creating teaching materials that distributed responsibility for innovation from individuals to the community. This pattern goes beyond the conventional PLC model because it involves cross-role collaboration, including guidance and counseling teachers, enabling differentiation based on students' holistic profiles.

Second, the implementation of differentiated instruction resulting from KomBel produced multidimensional positive effects on students. Affective impacts, including increased self-confidence, intrinsic motivation, and the feeling of being recognized as an individual, consistently appeared before cognitive impacts. This finding confirms that effective differentiation first works through the restoration of pedagogical relationships before influencing academic achievement, in line with [3] regarding the importance of a responsive learning environment as the foundation of deep learning. The practical implication is that differentiated instructional design cannot be separated from students' social-emotional well-being.

Third, the sustainability of KomBel requires two conditions to be present simultaneously: systemic institutionalization and

cultural authenticity. The formalization of KomBel into the structure of school policy, including the academic calendar, school work plans, medium-term development plans, budget allocation, and supervision systems, is a structural prerequisite so that the program does not depend on particular individuals. However, such formalization will be effective only if accompanied by the development of a culture that allows teachers to share vulnerability, experiment, and learn from failure without the threat of judgment. These two conditions are complementary and cannot replace one another.

This study has several practical implications. For policymakers at the district and provincial levels, the findings emphasize the urgency of allocating scheduled time, rather than merely issuing recommendations, for teachers to participate in collegial learning communities. For principals, active instructional leadership and direct presence in KomBel forums proved to be distinguishing factors between transformative and merely procedural learning communities. For teachers, collaboration with colleagues is a competency development pathway that proves more effective than individual training detached from real classroom contexts.

This study is limited by its single case study design, which restricts statistical generalization. Therefore, replication using a multi-site design in diverse school contexts, including differences in the level of Merdeka Curriculum implementation, resource capacity, and geographical characteristics, is strongly recommended to strengthen the transferability of the findings. Longitudinal studies tracking the impact of KomBel on student learning outcomes over a longer period would also make a valuable contribution to the evidence base for teacher development policy in Indonesia.

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