



Project-Based Learning in Bahasa Indonesia Instruction: A Needs Analysis in the Merdeka Curriculum Context

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ABSTRACT

Project-Based Learning (PBL) has gained substantial empirical support as an instructional model capable of fostering student engagement, higher-order thinking, and authentic communicative competence, yet its systematic adoption in Bahasa Indonesia instruction at the senior secondary level remains limited. This study conducted a comprehensive needs analysis to map the conditions, gaps, and stakeholder requirements preceding PBL implementation in Bahasa Indonesia classrooms at SMA Pembangunan Padang, West Sumatera, Indonesia. Employing a qualitative descriptive design with a needs analysis framework, data were collected from three Bahasa Indonesia teachers, sixty students from Grades X and XI, and one school principal through in-depth interviews, unstructured classroom observation, a needs analysis questionnaire, and a focus group discussion. Data analysis followed Miles et al.'s interactive model, with trustworthiness established through source and method triangulation. Findings reveal four interconnected dimensions of need: teachers require subject-specific PBL implementation guidance and sustained professional development; students demonstrate strong preferences for contextual, collaborative, and product-oriented learning experiences; the school's infrastructure provides an adequate but improvable baseline; and the existing assessment system is structurally misaligned with the holistic evaluation demands of PBL. These findings collectively indicate that PBL adoption at SMA Pembangunan Padang is motivationally feasible but requires coordinated reform across pedagogy, assessment design, and institutional support. The study contributes a multi-dimensional needs analysis framework applicable to Bahasa Indonesia instruction within the Merdeka Curriculum context.

Keywords: *Bahasa Indonesia Instruction, Merdeka Curriculum, Needs Analysis, Project-Based Learning, Senior Secondary Education*

INTRODUCTION

Indonesian language instruction at the senior secondary level occupies a strategically important position in national education, as it serves as the primary vehicle through which students develop communicative competence, critical literacy, and the capacity for higher-order reasoning (Fernandes et al., 2024; Subandiyah et al., 2025). Despite its recognized importance, the teaching of Bahasa Indonesia in many schools continues to be dominated by teacher-centered approaches, lecture-based delivery, and assessment practices that address only lower-order cognitive demands (Nugraheni et al., 2021). This persistent pattern stands in direct tension with the principles of the Merdeka Curriculum, which explicitly calls for student-centered, inquiry-driven, and contextually relevant instruction across all subjects. Amiruddin et al. (2023) demonstrated that the Merdeka Curriculum's student-centered design can meaningfully stimulate active learning, self-directed engagement, and learner autonomy when implemented with fidelity, yet also identified that many classroom teachers continue to struggle to translate these principles into everyday instructional practice. The gap between curricular aspiration and classroom reality thus remains a defining challenge for Indonesian language education at the secondary level.

Project-Based Learning (PBL) has attracted sustained scholarly attention as one of the most well-supported instructional models for closing this gap. Broadly defined, PBL positions students as active agents who investigate authentic problems, construct knowledge through sustained inquiry, and produce meaningful products or performances (Boss et al., 2018; Thomas, 2000). Its effectiveness has been substantiated across a wide range of educational settings and grade levels. Zhang and Ma (2023) conducting a large-scale meta-analysis of 66 experimental and quasi-experimental studies published in *Frontiers in Psychology* and indexed in Scopus, found that PBL produced significantly superior learning outcomes compared to traditional teaching across multiple subject areas, with positive contributions to academic achievement, critical thinking, and student motivation. In the Indonesian higher education context, Zen et al. (2022) similarly confirmed that project-based online learning exerts a significant positive effect on both student engagement and academic achievement, reinforcing the case for PBL-oriented instruction across diverse educational levels within Indonesia.

The application of PBL specifically in language education has generated a productive line of inquiry that directly informs the present study. Research conducted in Indonesian school contexts has consistently shown that active, project-oriented approaches improve student motivation, language production, and communicative engagement beyond what conventional methods can achieve. Manalu and Karyanto (2025) found that students taught through PBL at a vocational school in Surabaya demonstrated markedly stronger performance in both theoretical understanding and practical skill execution compared to a control group, with the

difference statistically significant at $p = 0.001$. By and Veng (2024) further demonstrated that integrating active, task-oriented methodologies into university language instruction creates a more responsive and confidence-building learning environment, underlining the communicative and pedagogical value of moving away from passive, teacher-driven classroom structures. These studies collectively point to PBL not as a peripheral innovation but as an evidence-supported instructional approach with demonstrated relevance to language learning contexts in Indonesia.

Several prior studies have examined needs analysis and PBL adoption in educational settings, and their findings provide important groundwork for the present inquiry. Rehman et al. (2024) established that PBL strengthens collaborative learning, problem-solving skills, and critical thinking in secondary education, while also identifying student engagement as a critical mediating variable. Farrow et al. (2024) found that even when teachers successfully incorporated PBL elements into their curricular designs, the presence of those design features did not reliably translate into high-quality PBL instruction in the classroom, concluding that teachers require explicit, context-specific professional training rather than curriculum materials alone to enact student-centered PBL practices effectively. Within Indonesia, Amiruddin et al. (2023) further noted that while Merdeka Curriculum implementation generally supports active learning, teachers require sustained structural and professional support to enact the curriculum's student-centered vision reliably in the classroom. Despite this growing evidence base, systematic needs analyses that map the specific pedagogical, infrastructural, and assessment-related prerequisites for PBL adoption in Bahasa Indonesia instruction at the senior secondary level remain largely absent from the literature.

The present study directly addresses this gap by conducting a comprehensive needs analysis for the implementation of Project-Based Learning in Bahasa Indonesia instruction at SMA Pembangunan Padang, a private secondary school in Padang, West Sumatera, Indonesia. The school presents a particularly instructive case: it has demonstrated institutional commitment to instructional innovation while simultaneously lacking a systematic empirical basis from which to plan and execute PBL adoption in its Indonesian language classes. Preliminary observations by the research team revealed a marked discrepancy between the stated preferences of teachers and students and the instructional practices currently in place. Teachers acknowledged that existing methods were insufficient to stimulate creativity and sustained motivation, while students articulated a clear preference for learning that is more contextual, collaborative, and oriented toward the creation of meaningful work.

The study is guided by four primary research questions: first, what pedagogical and professional needs do Indonesian language teachers have regarding PBL implementation; second, what are students' learning needs and

preferences with respect to project-based Bahasa Indonesia instruction; third, how adequate is the school's physical and technological infrastructure to support PBL; and fourth, what characteristics should an authentic assessment system have to meet the evaluation demands of PBL in this context. Addressing these questions systematically contributes to the theoretical understanding of needs analysis as an indispensable foundation for instructional design, and offers practical implications for teachers, school administrators, and curriculum developers working within the Merdeka Curriculum framework.

The novelty of this study lies in its simultaneous integration of four interrelated dimensions of needs analysis, namely teacher pedagogy, student learning preferences, institutional infrastructure, and assessment design, within a single coherent investigation that is anchored specifically in the context of Bahasa Indonesia instruction at the senior secondary level. Unlike prior studies that examine these dimensions separately or concentrate on English language teaching, this research situates the analysis within the distinctive curricular context of the Merdeka Curriculum's *Proyek Penguatan Profil Pelajar Pancasila* (P5) initiative, where project-based learning is already formally embedded as a structural component of the national curriculum. This contextual grounding renders the findings applicable not only to SMA Pembangunan Padang but also transferable to comparable schools navigating the challenges of Merdeka Curriculum adoption across West Sumatera and the wider Indonesian educational landscape.

LITERATURE REVIEW

Project-Based Learning: Theoretical Foundations and Core Principles

Project-Based Learning is broadly understood as an inquiry-based instructional model in which students engage in sustained investigation of authentic, meaningful problems and culminate that process by producing tangible outcomes or performances that extend beyond the classroom (Krajcik & Shin, 2014). What distinguishes PBL from other active learning approaches is its dual commitment to both content mastery and the development of transferable competencies, meaning students do not merely receive and reproduce knowledge but are expected to construct it through iterative cycles of questioning, investigation, collaboration, and reflection. A systematic literature review of Scopus-indexed PBL studies conducted by Wahbeh et al. (2021) confirmed that project-based language learning consistently supports the development of students' life skills alongside linguistic competence, noting that the model's authentic task design creates conditions for deeper and more durable learning than conventional instructional formats permit.

Central to understanding why PBL produces these outcomes is the concept of authenticity. When students work on problems that have genuine relevance to their lives, communities, or disciplines, their intrinsic motivation and cognitive engagement are substantially heightened. Sun and Zhu (2023) explored the impact

of project-based language teaching on high school EFL students and found that PBLT generated measurable improvements across multiple dimensions of linguistic and cognitive competence, particularly in students' capacity to reason with evidence, synthesize information across sources, and produce creative communicative outputs. These gains were directly attributed to the authenticity of the tasks and the collaborative structure of project work, which compelled students to use language purposefully rather than in isolated, decontextualized exercises (Song et al., 2024). Such findings carry direct implications for Bahasa Indonesia instruction, where the gap between classroom language tasks and real-world language use has long been identified as a structural weakness of conventional teaching approaches.

PBL in Language Education and Its Relevance to Indonesian Contexts

The application of PBL in language teaching has been substantiated across a wide range of linguistic and cultural contexts. Zhang and Ma (2023) whose meta-analysis drew on 66 experimental and quasi-experimental studies, found that the positive effects of PBL on learning outcomes were robust across subject areas, grade levels, and instructional settings, with language learning among the domains showing the most consistent gains. More specifically within language teaching, PBL has been shown to improve writing proficiency, oral communication, vocabulary acquisition, and reading comprehension simultaneously, precisely because project tasks require students to integrate these skills in the service of a communicative goal rather than practicing them in isolation. A systematic review by Bouwer et al. (2023) and Cahyono et al. (2024) confirmed that PBL produced a statistically significant overall effect on EFL and ESL writing outcomes, with the model's collaborative and authentic task structure identified as the primary mechanism driving improvement.

Within the Indonesian educational context, the relevance of PBL has become particularly pronounced since the introduction of the Merdeka Curriculum, which formally integrates project-based approaches through the *Proyek Penguatan Profil Pelajar Pancasila* (P5) initiative. Amiruddin et al. (2023) demonstrated that the Merdeka Curriculum's student-centered framework creates structural conditions that are broadly supportive of active and self-directed learning, yet also found that successful enactment of these principles depends heavily on how well teachers understand and operationalize the curriculum's intent at the classroom level. This finding underscores a critical point: the presence of a curriculum mandate favorable to PBL does not automatically translate into high-quality project-based instruction. Teachers require both conceptual understanding of PBL's theoretical foundations and practical guidance on designing and facilitating projects that are genuinely aligned with the curriculum's goals, particularly in subject-specific contexts such as Bahasa Indonesia where the intersection of language competence, cultural

knowledge, and communicative practice creates distinct pedagogical demands (Martinez, 2022; Zhang & Ma, 2023).

Needs Analysis as a Foundation for Instructional Design

Needs analysis occupies a foundational role in the design of any instructional innovation, functioning as the empirical mechanism through which developers and practitioners identify the gap between existing conditions and desired learning outcomes before committing to a particular pedagogical approach. Hutchinson and Waters (1987) learning-centered framework remains widely referenced as a theoretical anchor for needs analysis practice, distinguishing between target needs, which encompass what learners need to accomplish in the target situation, and learning needs, which address how learners are best positioned to achieve those outcomes. Within this framework, three categories of target needs are particularly relevant to the present study: necessities, referring to what students must know and be able to do in Bahasa Indonesia; lacks, referring to the gap between their current competence and those necessities; and wants, referring to learners' own expressed preferences and aspirations for their learning experience.

More recent scholarship has expanded the conceptual scope of needs analysis beyond the learner-centered dyad of teachers and students to encompass institutional, infrastructural, and assessment dimensions as equally determinative of instructional success. Mansor et al. (2025) argued that systematic needs analysis must map not only what learners need but also what contextual conditions must be in place for those needs to be met effectively, including the availability of appropriate materials, the readiness of teachers, and the alignment of assessment practices with instructional goals. This expanded understanding of needs analysis is particularly pertinent to PBL implementation, where the demands placed on physical infrastructure, teacher competence, and assessment design are substantially greater than those associated with conventional instructional models. Without a thorough prior mapping of these dimensions, even well-intentioned PBL adoption risks producing a mismatch between the model's requirements and the conditions available to support it.

Authentic Assessment in PBL and Its Implications for Bahasa Indonesia

One of the most consequential and frequently underestimated challenges of PBL implementation concerns assessment. Conventional assessment instruments, including written examinations, multiple-choice tests, and individual assignments, are structurally misaligned with the collaborative, process-oriented, and product-focused nature of PBL (Saavedra & Rapaport, 2024). What PBL demands instead is authentic assessment: approaches that evaluate students' capacity to apply knowledge and skills in contexts that approximate real-world communicative or professional practice. Ramadhan et al. (2020) demonstrated that learning modules designed around project outcomes require correspondingly authentic assessment

frameworks that capture both the process of learning and the quality of the final product.

The challenge of designing and implementing such assessment instruments is compounded in language education contexts by the breadth of competencies that language courses are expected to evaluate, spanning speaking, listening, reading, writing, and metalinguistic awareness. In the context of Bahasa Indonesia instruction specifically, Nurgiyantoro (2014) has long argued that assessment must be performance-based and multidimensional, yet research consistently shows that actual assessment practices in Indonesian language classrooms remain dominated by product-based, end-of-unit evaluations that fail to capture the developmental and collaborative dimensions of student learning. The introduction of PBL as an instructional model therefore cannot be fully realized without a parallel reform of assessment practices, making the assessment dimension of needs analysis not a peripheral concern but a central one (Dampierre et al., 2024). Understanding what teachers currently use, what they recognize as inadequate, and what they believe an authentic PBL assessment system should look like is, for this reason, treated in the present study as an analytically distinct and substantively important dimension of the needs analysis process.

RESEARCH METHODOLOGY

This study employed a qualitative descriptive design with a needs analysis approach, a combination well suited to research that seeks to generate an accurate and detailed account of conditions as they exist rather than to test hypotheses or establish causal relationships (Creswell & Creswell, 2023). The qualitative descriptive orientation was selected because the research questions require an understanding of the perspectives, experiences, and felt needs of multiple stakeholders, namely teachers, students, and a school principal, within a specific institutional context. A needs analysis framework structured the inquiry by directing data collection toward three analytically distinct dimensions: present situation, which captures what is currently happening in Bahasa Indonesia classrooms at SMA Pembangunan Padang; target situation, which identifies what teachers and students believe should be happening; and learning situation, which examines the conditions and resources available to bridge the two (Hutchinson & Waters, 1987). The alignment of these three dimensions with the four research questions governing this study ensured that data collection remained focused and that findings were systematically organized around the core concerns of pedagogy, student learning, infrastructure, and assessment.

The research was conducted at SMA Pembangunan Padang, a private secondary school in Padang, West Sumatera, Indonesia, over a period of four months from February to May 2026. Participants were selected using purposive sampling, which Creswell and Creswell (2023) describe as the deliberate selection

of individuals who can provide the most relevant and information-rich data in relation to the research questions. The sample consisted of three Bahasa Indonesia teachers who teach at the Grade X, XI, and XII levels, sixty students drawn proportionally from Grades X and XI, and the school principal. This composition was determined by the criterion that all participants are directly and regularly involved in Bahasa Indonesia instruction at the school, thereby ensuring that the data gathered reflect the actual conditions and needs of the community under study rather than external or hypothetical perspectives. The research instruments, comprising an in-depth interview guide, an unstructured observation protocol, and a needs analysis questionnaire, were validated for content adequacy by two subject-matter experts from Universitas Negeri Padang, one specializing in Indonesian language pedagogy and one in instructional design. Table 1 presents the instrument grid used to guide data collection across the four dimensions of needs analysis.

Table 1 Needs Analysis Instrument Grid

Dimension	Indicators	Instrument	Source
Pedagogical Needs	PBL understanding, implementation guidance, professional support	Interview, Questionnaire	Teachers
Student Learning Needs	Learning preferences, contextual relevance, collaborative tasks, self-expression	Questionnaire, FGD	Students
Infrastructure Readiness	Technology access, workspace flexibility, learning materials	Observation, Interview	Principal, Teachers
Assessment Needs	Current practices, authentic instrument design, process and product evaluation	Interview, Questionnaire	Teachers

Source: Processed by the Researcher (2025)

Data were collected through three complementary methods: unstructured classroom observation to document the actual conditions of Bahasa Indonesia instruction in practice; semi-structured in-depth interviews with teachers and the school principal; and a needs analysis questionnaire administered to all sixty student participants to obtain descriptive-quantitative data that were subsequently interpreted qualitatively. A focus group discussion was also conducted with a representative sample of students to elicit more nuanced accounts of their learning preferences and aspirations. Data analysis followed the interactive model proposed by Miles et al. (2020), proceeding through four recursive stages: data collection, data condensation, data display, and conclusion drawing with verification. Trustworthiness was established through source triangulation, comparing data across teachers, students, and the principal, and method triangulation, cross-referencing findings from observation, interview, and questionnaire data to identify

convergent and divergent patterns. Member checking was additionally employed to confirm the accuracy of interview interpretations with participants before final analysis.

RESULT AND DISCUSSION

Teachers' Pedagogical and Professional Needs

In-depth interviews and classroom observations with the three Bahasa Indonesia teachers at SMA Pembangunan Padang revealed a pattern of needs that is both consistent across participants and structurally interconnected. All three teachers demonstrated a basic familiarity with the conceptual premises of PBL, having encountered the model through curriculum training associated with the Merdeka Curriculum rollout, yet none reported having translated this conceptual exposure into sustained, systematic classroom practice. The central pedagogical need that emerged across all three interviews was the absence of subject-specific implementation guidance: teachers consistently articulated that available PBL materials and training resources operate at a level of generality that renders them difficult to apply directly to the competency structure of Bahasa Indonesia. As one teacher stated, “We understand what a project is supposed to look like in theory, but when it comes to the actual core competencies in this subject, there is nothing that tells us concretely how to design that.” This finding captures a structural gap between curriculum policy intent and classroom readiness that has been identified as a recurring obstacle in PBL adoption studies across diverse educational settings (Farrow et al., 2024).

Beyond pedagogical guidance, teachers identified three further dimensions of professional need. First, they expressed a strong desire for sustained professional development, specifically in the form of workshops focused on PBL unit design for language subjects, peer learning communities within which teachers could collaborate on lesson planning, and ongoing mentoring from instructional design specialists rather than one-off training events. Second, teachers raised institutional support as a prerequisite, noting that flexible scheduling and administrative accommodation for project work are currently absent and that the existing structure of lesson periods and assessment reporting requirements is poorly aligned with the time demands of meaningful project work. Third, all three teachers acknowledged a gap in their assessment literacy, noting that they lack the instruments and the practical experience to evaluate student learning in a way that is fair, comprehensive, and aligned with the holistic competency goals of PBL. These three dimensions, pedagogical, professional, and administrative, together constitute what the present findings characterize as a multi-layered teacher readiness gap that must be addressed before PBL implementation can be practically and sustainably realized.

Students' Learning Needs and Preferences

Questionnaire data from the sixty student participants, corroborated by findings from the focus group discussion, presented a coherent and emphatic picture of student dissatisfaction with current instructional conditions alongside a strong, clearly articulated appetite for project-based learning. Across the questionnaire items, 83.3% of students reported wanting Bahasa Indonesia instruction that is more engaging, active, and connected to their daily lives. A slightly lower proportion, 78.3%, indicated a preference for learning that involves producing real, tangible outcomes such as videos, magazines, or public presentations, while 71.7% reported feeling demotivated by the dominant combination of lecture-based delivery and individual written tasks that characterizes their current learning experience. These figures are not merely indicators of dissatisfaction; they also constitute empirical evidence of a learner population whose motivational profile is broadly well aligned with the premises of PBL. Research on student engagement in language classrooms consistently affirms that perceived relevance and authentic task design are among the strongest predictors of active participation and sustained effort (Bećirović, 2023; Mhlongo et al., 2023), and the data from this study suggest that SMA Pembangunan Padang students are precisely the kind of learners for whom these design principles are likely to produce measurable gains.

Three qualitative themes emerged from the focus group discussion that add granular texture to the questionnaire data. The first was the demand for contextual learning, with students repeatedly expressing a desire for Bahasa Indonesia tasks grounded in the cultural and social realities of Padang and Minangkabau, including local oral literature, traditional storytelling forms, and current social issues relevant to their lives. The second was a strong preference for collaborative work in structured teams with clearly defined roles, reflecting students' belief that working in groups produces better outcomes and more enjoyable learning than individual assignments. The third theme was the desire for public recognition of their work, with students expressing a wish to share their projects with audiences beyond the classroom, including through school exhibitions, social media platforms, and community presentations. This last finding is particularly significant, as it connects directly to one of PBL's defining characteristics, the creation of a public product, and suggests that the motivational conditions for authentic project work are present in this student population without requiring external construction. These preferences align with what Sun and Zhu (2023) identified as the core drivers of PBLT effectiveness, namely, authentic communicative purpose and collaborative task structure, further reinforcing the appropriateness of PBL as an instructional model for this context.

Infrastructure Readiness and Institutional Conditions

Observational data and interviews with the school principal revealed that SMA Pembangunan Padang possesses a functional baseline of technological

infrastructure that is adequate to support PBL at a foundational level, while simultaneously exhibiting several specific gaps that could meaningfully constrain more ambitious project designs. The school is equipped with a computer laboratory offering internet access, classroom projectors, and a library holding a range of print and digital reference materials. These represent genuine assets that can support research-oriented project phases, digital content production, and multimedia presentation tasks. However, three infrastructural constraints were identified as requiring targeted attention prior to full-scale PBL implementation. Internet connectivity is currently limited to the computer laboratory and several administrative offices, leaving most classroom spaces without reliable wireless access, a limitation that would significantly hamper project phases requiring real-time digital collaboration or online research. Physical workspace is a second constraint: the prevailing classroom arrangement of fixed rows of desks and chairs is structurally inhospitable to the kind of flexible groupwork, material preparation, and product creation that PBL projects typically demand. The third constraint is the limited availability of creative production materials, including cameras, recording equipment, printing tools, and art and craft supplies, which would be essential for the types of projects, such as documentary production, magazine publishing, and podcast recording, that students in the focus group specifically requested.

These findings align with the broader literature on technology integration in educational settings, which consistently identifies infrastructure adequacy as a necessary but not sufficient condition for successful PBL implementation. Mhlongo et al. (2023) found that while digital technology access enables new learning possibilities and expands the scope of project tasks, the quality of physical learning environments, including workspace design and material availability, remains equally determinative of whether technology-enhanced pedagogies can be effectively enacted. The implication for SMA Pembangunan Padang is not that PBL implementation should be deferred until ideal infrastructure conditions are achieved, but rather that initial project designs should be strategically calibrated to work within existing resource constraints while a phased plan for infrastructure improvement is pursued in parallel.

Assessment Needs and Authentic Evaluation Design

The assessment dimension of the needs analysis produced findings that are, in many respects, the most consequential of the four dimensions examined in this study. The current assessment practices of Bahasa Indonesia teachers at SMA Pembangunan Padang are heavily weighted toward end-of-unit written examinations and individual assignment scores, with minimal use of process-based documentation, peer evaluation, or portfolio approaches. This structure is not merely misaligned with the theoretical demands of PBL; it represents an active barrier to PBL implementation, because teachers who are required to produce conventional grade records within conventional reporting frameworks have neither

the instruments nor the institutional permission to assess the dimensions of learning that PBL most directly develops, including collaboration, creative problem-solving, iterative revision, and communicative product quality. All three teachers acknowledged that their existing assessment instruments would be inadequate for evaluating student work produced through PBL and that they currently lack the knowledge, tools, and confidence to design alternatives.

The specific assessment needs identified by teachers fell into four categories that were consistently articulated across all three interviews: rubrics for evaluating the process of project work from initiation to completion; product-specific evaluation frameworks adapted to the diverse types of outcomes that Bahasa Indonesia projects might generate; structured instruments for self-assessment and peer assessment that could be introduced progressively as students develop familiarity with evaluative criteria; and an electronic portfolio system to document and archive student work across multiple projects and over time. These needs map closely onto the assessment design principles that Ramadhan et al. (2020) identified as essential for PBL-based Bahasa Indonesia modules, and they also reflect the broader finding of the authentic assessment literature that portfolio and rubric-based systems are the most appropriate evaluation instruments for capturing the developmental and collaborative dimensions of project learning. The absence of such instruments at SMA Pembangunan Padang is not a reflection of teacher indifference but of the structural and professional development gap identified in Section 4.1: teachers who have not been trained in authentic assessment design cannot be expected to construct these instruments independently, and their development must therefore be treated as an integral component of any teacher capacity-building program accompanying PBL adoption.

The findings of this study are broadly consistent with the patterns reported in prior research on PBL needs and implementation conditions in Indonesian secondary school contexts. The teacher readiness gap documented here, characterized by conceptual familiarity unaccompanied by practical implementation capacity, mirrors the pattern that Farrow et al. (2024) identified in their analysis of PBL enactment among teachers in underserved communities, where the presence of PBL design features in lesson plans did not reliably translate into student-centered instructional practice. Similarly, the student data from this study align closely with the findings of Zen et al. (2022) and Zhang and Ma (2023), both of which established that student engagement and academic achievement respond significantly to project-based approaches precisely when the learning tasks are perceived as meaningful, collaborative, and oriented toward real outcomes. The demand for contextually grounded project work, specifically work connected to Minangkabau cultural heritage and local social realities, echoes the argument advanced by Amiruddin et al. (2023) that the effectiveness of student-centered approaches in Indonesian schools is substantially mediated by the degree to which the curriculum's content and methods resonate with students' own cultural and

community contexts. The infrastructure findings, while specific to SMA Pembangunan Padang, are consistent with Mhlongo et al. (2023) observation that digital access and workspace design interact with each other, and that the absence of either creates compounding constraints on technology-enhanced pedagogies.

At the same time, the present study surfaces a dimension that existing studies in the Indonesian context have addressed less systematically: the simultaneous and interconnected nature of needs across teacher competence, student preference, institutional infrastructure, and assessment design. Prior studies tend to examine these dimensions independently or to focus on one to the partial exclusion of others. The finding from this study that these four dimensions are structurally interdependent, that deficiencies in one compound the challenges in others, represents a contribution that refines and extends the existing evidence base rather than simply confirming it. Specifically, the assessment dimension revealed here as both the most urgent and the most structurally neglected receives considerably less attention in studies focused on PBL adoption in language teaching, which tend to foreground motivational and competency outcomes while treating assessment as a secondary concern. The data from SMA Pembangunan Padang suggest, on the contrary, that assessment reform must be treated as a co-equal priority alongside pedagogical training and infrastructure development if PBL implementation is to be both educationally valid and institutionally sustainable.

CONCLUSION

This study set out to conduct a systematic needs analysis for the implementation of Project-Based Learning in Bahasa Indonesia instruction at SMA Pembangunan Padang, examining four interrelated dimensions: teacher pedagogical and professional readiness, student learning preferences, institutional infrastructure, and assessment design. Across all four dimensions, the findings consistently pointed to a school community that is motivationally and institutionally disposed toward PBL adoption but that faces concrete, addressable gaps between current conditions and the requirements for effective implementation. Teachers possess foundational conceptual awareness of PBL but lack the subject-specific guidance, professional training, and assessment literacy needed to enact it with fidelity. Students demonstrate a strong and clearly articulated desire for learning that is contextual, collaborative, and oriented toward the production of meaningful work, a profile that maps directly onto the premises of project-based instruction. The school's infrastructure provides a workable baseline while requiring targeted improvement in internet access, flexible workspace, and creative production resources. Most critically, the assessment system currently in use is structurally misaligned with the holistic, process-oriented evaluation demands of PBL and must be reformed in tandem with any pedagogical change if implementation is to be educationally valid.

Taken together, these findings carry several practical implications for school administrators, curriculum developers, and teacher educators working within the Merdeka Curriculum framework. The development of PBL implementation guides that are specifically calibrated to the core competencies of Bahasa Indonesia instruction, rather than generic pedagogical handbooks, emerges as the most immediate and actionable priority. Equally important is the design of structured teacher capacity-building programs that integrate pedagogical training, authentic assessment instrument development, and the formation of professional learning communities, recognizing that isolated workshops produce insufficient and unsustained change. At the institutional level, school leadership has a determining role to play in creating the administrative flexibility, resource allocation, and policy environment without which even well-prepared teachers cannot sustain PBL practice over time. The contextual embeddedness of Minangkabau culture and local social realities in project design is not merely a pedagogical preference expressed by students but a structural condition for the kind of authentic, meaningful learning that PBL is theoretically designed to produce.

This study is bounded by its single-site, qualitative design, and the findings, while rich in contextual detail, should be interpreted with appropriate caution regarding their generalizability to other schools, regions, or curriculum contexts. Future research should build on this needs analysis by moving toward the development and empirical validation of PBL instructional materials specifically designed for Bahasa Indonesia at the senior secondary level, with systematic evaluation of their effectiveness across a broader range of schools in West Sumatera and beyond. Longitudinal studies examining the trajectory of teacher competence development through sustained PBL professional learning communities would further extend the evidence base in ways that the present cross-sectional design cannot. Ultimately, this study contributes to the growing body of work demonstrating that the successful realization of the Merdeka Curriculum's student-centered vision requires not only policy mandate but systematic, evidence-based, and context-sensitive preparation at every level of the school system.

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