



Literacy culture in DKI Jakarta elementary schools: An analysis based on school accreditation data

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ABSTRACT

This study examines the implementation of literacy culture and learning quality in public elementary schools across DKI Jakarta. In this study, literacy culture is defined as the institutional integration of reading and writing practices, supportive learning environments, aligned assessment, and school facilities that sustain literacy-oriented instruction. Using data from 195 accredited schools, the research analyzes seven key indicators: higher-order thinking skills, student assessment, remedial and enrichment programs, enjoyable learning facilities, literacy integration, classroom environment, and infrastructure optimization. Accreditation documents were used not as direct measures of students' literacy outcomes, but as institutional indicators reflecting the extent to which schools embed literacy-supporting practices in teaching and school management. The results show that most schools have implemented structured literacy programs and performance-based assessments, with 97.4% achieving high literacy integration. However, disparities remain in interactive learning environments and differentiated instruction, as only 46.2% met the criteria for enjoyable facilities and 69.7% for remedial and enrichment efforts. Qualitative analysis using NVivo identified dominant themes such as learning, literacy, and comfort, indicating school priorities. The study highlights the need for holistic improvement strategies, including technology integration, teacher training, and infrastructure support, to ensure sustainable literacy development and equitable access to quality education in urban settings. These findings show that high institutional literacy integration does not automatically indicate equal quality across all supporting dimensions, especially in enjoyable learning facilities and remedial-enrichment practices.

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Introduction

Education serves as the primary foundation for developing high-quality human resources, particularly at the elementary school level, which represents a critical stage in cultivating essential skills such as critical thinking, creativity, and basic literacy (Saavedra & Opfer, 2012). Literacy, which encompasses the ability to read, write, think analytically, and critically process information, is a core competency required to navigate the challenges of the globalized world, particularly in the era of the Fourth Industrial Revolution (OECD, 2019). As the capital city and national education hub, Jakarta holds a strategic position in spearheading efforts to improve literacy quality across Indonesia. However, despite relatively better access to education

in Jakarta compared to other regions, Indonesia's literacy performance remains significantly below the international average. According to the Programme for International Student Assessment (PISA), Indonesian students ranked 62nd out of 79 participating countries, reflecting persistent literacy challenges even in urban centers such as Jakarta (OECD, 2019).

The effort to build a strong literacy culture is multifaceted and extends beyond individual student capabilities. It requires an integrated educational ecosystem that connects interactive learning processes, a conducive classroom environment, and optimal use of educational infrastructure. Despite various policy initiatives, persistent challenges remain at the school level. Research indicates that low literacy outcomes are often linked to limited teacher capacity, suboptimal learning facilities, and a lack of innovative teaching strategies (Rizqiyah et al., 2022; Surahman et al., 2020). A positive school climate and supportive learning environment also shape students' literacy opportunities and can reduce literacy gaps across socio-economic contexts (Wang & Degol, 2016; Berkowitz, 2021). These findings emphasize the need to investigate how educational elements can be cohesively integrated to foster a robust literacy culture.

In this study, literacy culture is not treated merely as students' reading and writing ability, nor as a broad label for all dimensions of school quality. Rather, it refers to the institutional conditions that sustain literacy-oriented learning, including the integration of reading-writing practices into classroom instruction, the availability of supportive learning environments, the alignment of assessment practices, and the use of school facilities that encourage literacy engagement.

Furthermore, elementary school literacy is shaped by contextual factors such as home environment, family support, and teaching practices. Teachers' capacity to develop a literacy culture is significantly influenced by continuous professional development (Perkins & Cooter, 2013; Kraft et al., 2018; Marinelli et al., 2022). Similarly, Coker highlights that classroom atmosphere and teaching methods at the primary level have a substantial impact on students' writing abilities (Coker, 2006), while writing instruction research also shows the importance of explicit and sustained support in the elementary grades (Graham et al., 2012). Additional studies by Hall and Wirth stress the importance of family involvement and a literacy-rich home environment in developing students' literacy skills (Hall et al., 2024; Wirth et al., 2022; Dong et al., 2020; Dahl-Leonard et al., 2025; Noble et al., 2019). These findings underscore that literacy development depends not on a single factor but rather on a complex interplay among various educational components.

To address these multifactorial influences, several studies have examined the conditions under which literacy culture can be cultivated effectively in schools. Marmoah et al. (2022) point to the importance of structured school strategies and the pivotal role of school leadership in allocating resources and implementing programs that support literacy development. Wangid et al. (2020) argue that teacher efficacy, shaped by professional experience and training, greatly influences student engagement. Meanwhile, family-school collaboration has been shown to enhance literacy development, as demonstrated, who found that family literacy initiatives significantly improve students' reading interest and ability (Dinihari et al., 2021; Dinihari et al., 2025; Helmanto et al., 2024; Parera et al., 2024). Taken together, these studies confirm that a supportive environment at school and at home is crucial in building a sustainable literacy culture, particularly when schools combine literacy leadership with differentiated instruction and assessment practices that respond to student diversity (Black & Wiliam, 2009; Hu, 2024; Achmad et al., 2024; Ardenlid et al., 2025).

In addition, technological integration is increasingly seen as a critical element in effective literacy instruction. Teachers with strong digital competencies are better able to design learning experiences that are relevant and engaging for today's learners (Hutagalung & Purbani, 2021). The ability to utilize multimedia resources and digital platforms supports innovation in literacy pedagogy and provides broader access to diverse texts and learning strategies (Lee et al., 2022; Ntsobi & Costa, 2022). This also highlights the importance of continuous professional development to help teachers integrate digital tools effectively into classroom practice (Philipsen et al., 2019; Kirsten et al., 2023).

Previous studies on literacy in elementary education have tended to focus on student literacy outcomes, specific school literacy programs, teacher competence, or family support in isolation. Limited attention has been given to how institutional indicators documented in school accreditation reflect the broader school conditions that support literacy culture. In particular, few studies have examined whether accreditation-based indicators such as literacy integration, classroom environment, assessment practices, and infrastructure can be analytically read as dimensions of literacy-supporting school culture in an urban context such as DKI Jakarta.

In addition to analyzing the quality of learning, this study also explores the relationships between conducive classroom environments, the use of educational infrastructure, and teaching and assessment methods, and how these contribute to the development of a literacy culture. Such research is expected not only to provide a nuanced understanding of educational conditions in Jakarta but also to offer an empirical foundation for more targeted, evidence-based policymaking. By taking this approach, the study aims to

generate both academic relevance and practical contributions to the advancement of primary education in Indonesia.

This research is particularly relevant in offering new perspectives on both the challenges and opportunities for strengthening literacy in elementary schools. Utilizing school accreditation data as a basis, this study seeks to present holistic solutions for improving learning and literacy quality, along with actionable recommendations for education stakeholders in Jakarta. Ultimately, this work aspires to contribute to the cultivation of a literate, competent generation prepared to thrive in the era of globalization.

Therefore, this study aims to examine how selected accreditation indicators represent school-level conditions that support literacy culture in public elementary schools in DKI Jakarta. Specifically, the study seeks to identify which dimensions are strongly implemented, which remain weak, and how these patterns reveal the uneven institutional foundations of literacy-oriented instruction. Rather than measuring students' literacy achievement directly, this study contributes by offering an institutional perspective on literacy culture using large-scale accreditation data. This approach helps bridge policy evaluation and school-level practice, while also revealing the limitations of relying on institutional indicators alone to interpret literacy development.

Method

This study employs a descriptive quantitative approach to examine the relationship between various educational elements and the development of literacy culture in elementary schools across Jakarta. The analysis focuses on accreditation data from a representative sample of public elementary schools in the DKI Jakarta Province. Accreditation scores are used as proxies to assess indicators related to the quality of learning, classroom environment, use of facilities, teaching strategies, and student assessment components identified in the literature as integral to literacy development (Kucer, 2014; OECD, 2019).

Operationalization of Literacy Culture

In this study, literacy culture is operationalized as a school-level institutional construct rather than an individual student outcome. It is inferred from accreditation indicators that reflect whether schools provide literacy supportive conditions, including the integration of reading and writing in classroom practices, the use of assessment to support learning, the provision of remedial and enrichment opportunities, the availability of conducive learning environments, and the optimization of facilities and infrastructure. Therefore, the indicators are not interpreted as direct measures of literacy achievement, but as proxies for the institutional environment that may sustain literacy culture.

The study focuses on seven key indicators representing essential components of effective teaching and literacy development, namely high-order thinking skills in learning, learning assessment systems, remedial and enrichment programs, enjoyable learning facilities, the integration of reading and writing literacy, safe and comfortable learning environments, and the optimal use of school facilities and infrastructure. These indicators collectively reflect a holistic approach to education, as they not only emphasize cognitive development through higher-order thinking but also highlight the importance of continuous assessment, differentiated support through remedial and enrichment activities, and the creation of engaging learning experiences. Furthermore, the integration of literacy skills and the provision of a safe, supportive environment reinforce students' motivation and participation, while the effective utilization of school facilities ensures that learning resources are maximized to support instructional goals.

These seven indicators were selected because they represent institutional dimensions repeatedly discussed in the literacy and instructional quality literature as relevant to literacy-supportive schooling. The inclusion of remedial, enrichment, and assessment indicators is also consistent with the view that differentiated assessment and responsive classroom practices are essential for supporting varied student learning needs (Tomlinson & Moon, 2013). Nevertheless, they do not exhaust all dimensions of literacy culture; instead, they function as analytically manageable indicators for examining how literacy-oriented conditions are institutionally documented in accreditation records.

Optimal use of school facilities and infrastructure. A total of 195 public elementary schools were selected using stratified random sampling to ensure balanced representation from Jakarta's five administrative municipalities (Central, West, East, South, and North Jakarta). Each school's accreditation document was examined for specific indicators linked to literacy-related practices, including how schools integrate reading and writing in various subjects, the availability of libraries and reading corners, and the alignment of assessments with literacy outcomes (Guthrie & Wigfield, 2000).

Each indicator was assessed on a four-level scale, with Level 4 representing the highest performance based on national accreditation standards set by BAN-S/M. Data were analyzed using descriptive statistics, which enabled the identification of the frequency and percentage distribution of schools across the four

performance levels. The quantitative analysis was supplemented by qualitative insights using NVivo 12 software, where a Close Word Frequency analysis was conducted to capture dominant themes in the accreditation narrative documents. Words such as learning, literacy, infrastructure, and comfort appeared most frequently, underscoring the emphasis on core literacy and instructional priorities in the evaluated schools.

This proxy-based approach has limitations. Accreditation indicators cannot fully capture the lived practices, meanings, and interactions through which literacy culture is enacted in everyday classrooms. Accordingly, the findings should be interpreted as describing institutional readiness and support structures for literacy culture, rather than literacy culture in its fullest sociocultural sense.

This methodological approach enables the identification of key variables that significantly contribute to literacy development in the urban educational context. Moreover, by utilizing accreditation data, the study bridges the gap between policy evaluation and school-level practices, which is essential for formulating data-driven education strategies (Creswell, 2012).

This study involved public elementary schools located in the province of DKI Jakarta, Indonesia. The schools were selected purposively based on their availability of accreditation documents and representation of diverse educational contexts across the city's five administrative municipalities. The accreditation data used in this study serve as proxies to assess school quality indicators related to literacy and learning practice.

The primary participants in this study were 195 public elementary schools in DKI Jakarta. These schools represent various socio-economic and geographic contexts within the urban setting. Each school had completed the national accreditation process by the Badan Akreditasi Nasional Sekolah/Madrasah (BAN-S/M), which provided comprehensive documentation of their institutional performance. The documents included quantitative ratings and qualitative descriptions related to learning practices, assessment systems, infrastructure, and literacy programs.

These records indirectly reflected the perspectives and practices of educators involved in the teaching and learning process. To ensure ethical integrity, all school names were anonymized, and only aggregate data were reported in the analysis. Paragraph being on next line, first line is indented. Descriptive statistics were used to summarize the distribution of accreditation scores across the seven indicators. The percentage of schools achieving Level 4 (the highest performance level) was calculated for each indicator to identify areas of strength and those requiring improvement. The visual representation of the results was supported by bar charts that illustrated the fulfillment levels per indicator.

NVivo 12 was used only as a supplementary tool to identify dominant lexical patterns in the accreditation narratives. The word-frequency analysis was not intended to produce deep qualitative interpretation, but to provide an initial descriptive overview of themes that appeared most prominently in the documents. Therefore, the NVivo findings were used to support, not determine, the interpretation of the quantitative results.

Results and Discussion

Result

This study analyzed the implementation of key teaching and literacy indicators across 195 public elementary schools in the Province of DKI Jakarta. Seven main indicators were examined, including higher-order thinking in learning, assessment practices, remedial and enrichment programs, enjoyable learning facilities, reading and writing literacy integration, conducive learning environments, and the optimal use of infrastructure can be seen in Figure 1.

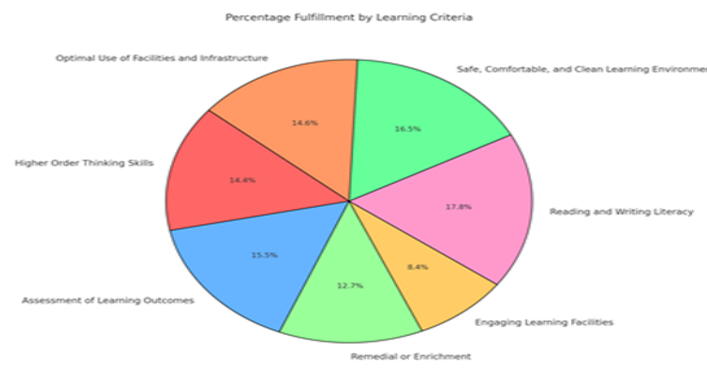


Fig 1. Percentage of Fulfillment Per Learning Criteria

The diagram above illustrates the percentage distribution of fulfillment across each of the learning criteria based on the data analysis. This visualization aids in identifying key strengths and challenges within various aspects of the instructional process. The findings show that 79% or 154 out of 195 schools reached Level 4 in the criterion of learning processes that develop higher-order thinking skills. This indicates that, on average, elementary schools in DKI Jakarta have implemented instructional approaches that provide students with opportunities to learn actively and engage in high-level cognitive tasks. These learning processes are typically conducted through concrete experiences and meaningful content, which contribute significantly to students' ability to solve real-world problems. This finding is also aligned with constructivist pedagogy, which emphasizes that meaningful learning occurs when students actively construct understanding through interaction, experience, and reflection (Simon, 1995).

Next, the criterion for Student Learning Assessment achieved a fulfillment rate of 84.6%, with 165 schools attaining Level 4. This result indicates that the majority of schools have established well-structured and measurable systems for assessing student achievement. Although the overall score is relatively high, efforts are still needed to ensure consistency in implementing assessment systems across all schools, especially those with limited capacity.

On the other hand, the Remedial and Enrichment Programs criterion only reached 69.7% fulfillment, with 136 schools at Level 4. This result suggests that many schools are not yet fully effective in providing support for students who require additional assistance or for those who need advanced enrichment. This shortcoming can hinder individual student development. Therefore, a more structured approach is needed to accommodate the diverse abilities of learners within the classroom.

The Enjoyable Learning Facilities criterion had the lowest fulfillment rate, at only 46.2%, with 90 schools reaching Level 4. This result indicates that many schools are still unable to provide learning environments that are interactive and engaging. The lack of modern educational facilities, flexible classroom arrangements, and relevant teacher training may contribute to this issue (Bluteau et al., 2022). These findings point to the need for greater investment in educational technologies and creative teaching strategies to enhance student engagement and enjoyment in learning (Kalogiannakis et al., 2021; Lee et al., 2022).

In contrast, the Reading and Writing Literacy criterion achieved the highest performance, with 97.4% of schools (190 schools) fulfilling Level 4 standards. This result reflects the successful integration of literacy programs into the curriculum, demonstrating that reading and writing literacy serve as a major strength supporting students' holistic skills development. This area of success can serve as a model for improving other learning indicators across primary schools.

The Safe, Comfortable, Clean, and Supportive Learning Environment criterion also showed strong results, with 90.3% fulfillment and 176 schools at Level 4. This suggests that the majority of schools have succeeded in creating a conducive learning atmosphere, which plays a vital role in supporting effective teaching and learning processes.

Finally, the Optimal Use of Facilities and Infrastructure criterion reached 80% fulfillment, with 156 schools achieving Level 4. This indicates that most schools have made good use of their available resources to support learning. However, there remains room for improvement in maximizing the efficient use of facilities in schools that have not yet reached the ideal standard.

Overall, the results of this study demonstrate that certain criteria—such as literacy development and classroom environment—have been successfully implemented in many schools. Nevertheless, other aspects, such as enjoyable learning facilities and differentiated instruction (remedial and enrichment programs), require further attention. These findings provide important guidance for schools and policymakers in their continuous efforts to enhance the quality of primary education in DKI Jakarta.

Additionally, the Close Word Frequency analysis using NVivo 12 revealed that keywords such as *belajar* (learning), *pembelajaran* (instruction), *sarana* (facilities), and *literasi* (literacy) were dominant within the qualitative data. The high frequency of the word *belajar* indicates that learning remains the central focus of school activities and reflects the strong orientation of educational practices toward student cognitive development. Meanwhile, the recurring presence of *pembelajaran* suggests an emphasis not only on outcomes but also on the processes and strategies employed by teachers in facilitating meaningful learning experiences. The frequent occurrence of *sarana* and *kenyamanan* (comfort) highlights the recognition of physical and psychological learning environments as crucial supporting factors that influence student engagement and achievement. In addition, the prominence of *membaca* (reading) and *menulis* (writing) demonstrates a consistent emphasis on foundational literacy skills, which continue to serve as the cornerstone of primary education. These patterns collectively illustrate that effective learning is shaped by the interaction between instructional practices, literacy development, and the availability of supportive learning environments, as further illustrated in Figure 2.

Discussion

A key point requiring careful interpretation is the apparent contradiction between the very high score for literacy integration (97.4%) and the persistence of literacy-related challenges discussed in later sections. This discrepancy may be explained by the difference between institutional documentation and actual classroom enactment. A school may formally integrate literacy into its curriculum and accreditation records, yet still face uneven implementation in terms of engaging facilities, differentiated instruction, and sustained pedagogical support. Therefore, high literacy integration scores should be interpreted as evidence of institutional commitment rather than as proof that all literacy outcomes and practices are equally strong.

The findings of this study offer a comprehensive view of the learning environment and literacy culture across elementary schools in DKI Jakarta, highlighting both strengths and areas requiring development. Supporting claims that performance-based assessments and equitable assessment practices can strengthen instructional quality and student engagement (Milner, 2018; Rios et al., 2020). These outcomes reflect a promising foundation for cultivating students' reading and writing proficiency, as well as their ability to engage in reflective learning.

However, the disparities observed among other indicators, particularly in remedial support, enrichment programs, and enjoyable learning facilities, underscore persistent gaps in educational equity and instructional quality. While some schools demonstrate advanced capacity to support diverse learning needs, others continue to struggle with fundamental infrastructure and differentiated instruction. These inconsistencies point to systemic limitations in training access, resource distribution, and pedagogical adaptability at the school level, which are also widely discussed in the differentiated instruction literature (Hu, 2024; Achmad et al., 2024; Ardenlid et al., 2025).

Notably, the limited development of enjoyable learning environments in spite of their known contribution to engagement and cognitive growth raises concerns about how effectively schools are meeting students' affective needs. Research on flexible seating and dynamic classroom design shows that optimized physical environments, such as flexible seating and interactive spaces, significantly improve student engagement and well-being (Cole et al., 2021; Bluteau et al., 2022). More broadly, school engagement research underscores that supportive classroom conditions are closely related to sustained participation in learning (Martins et al., 2022; Wang & Degol, 2016). The results also indicate that although performance-based assessments are becoming more common, conventional testing methods remain dominant, potentially limiting opportunities for deeper skill development, such as problem solving and critical thinking (Black & Wiliam, 2009; Graham et al., 2012).

In line with recent discussions on literacy innovation, literacy should not only be perceived as a cognitive and linguistic competence but also as a socio-creative skill that fosters innovation and entrepreneurship. As shown in the study (Ulya et al., 2023), although the present data do not directly measure literacy entrepreneurship, this perspective may offer a useful conceptual direction for future studies seeking to connect literacy learning with creativity and problem solving.

The qualitative analysis supports these conclusions, showing strong thematic emphasis on learning activities and infrastructure in school documents. This suggests that while schools are aware of their literacy priorities, practical implementation remains uneven, a pattern consistent with research on classroom environment and student engagement (Cole et al., 2021). A key insight is the recurring focus on "comfort," reflecting the importance placed on physical and psychological learning conditions, which can directly impact student outcomes.

Overall, these findings reflect the complexity of improving literacy culture in a highly urbanized and diverse educational system. While notable progress has been made in core literacy indicators, a more balanced and inclusive effort is necessary to ensure that all learners, regardless of background, benefit from high-quality, engaging, and supportive learning environments.

The findings also indicate that literacy culture should be understood as a multi-dimensional institutional condition. Strong performance in literacy integration does not automatically align with equally strong performance in remedial support or enjoyable learning environments. This unevenness suggests that literacy culture is not a single achievement, but a configuration of interrelated supports that must operate together if literacy-oriented learning is to be sustained effectively.

The most important implication of this study lies in the need for holistic strategies that go beyond literacy programming and address interconnected elements of teacher competence, classroom design, and equitable resource allocation (Kraft et al., 2018; Marinelli et al., 2022; Philipsen et al., 2019; Lee et al., 2022). Future research should explore the effectiveness of targeted interventions such as teacher-led innovation projects, school-based literacy mentorships, or digital classroom models in closing implementation gaps

across schools with varied capacities. By focusing on adaptive, scalable solutions, the education system in DKI Jakarta can move closer to achieving consistent excellence in both teaching and learning for all students.

Strategic Recommendations

The findings suggest that strengthening literacy culture in elementary schools requires a more balanced institutional approach. Although literacy integration and assessment practices show relatively strong performance, important gaps remain in enjoyable learning facilities and remedial-enrichment support. These results indicate that formal literacy implementation has not yet been matched by equally strong classroom conditions and differentiated instructional practices. Therefore, improvement efforts should focus on strengthening engaging learning environments, expanding support for diverse student needs, and sustaining teacher professional development. In addition, schools may benefit from integrating engaging instructional models and literacy materials that combine pedagogical innovation, digital support, and student motivation to strengthen literacy participation in elementary classrooms (Dinihari et al., 2025; Kalogiannakis et al., 2021).

Conclusion

This study reveals both significant progress and critical gaps in the implementation of literacy-focused instruction in public elementary schools across DKI Jakarta. While the integration of reading and writing literacy and the development of structured assessment systems have reached relatively high levels of implementation, notable disparities persist in key areas such as differentiated instruction, classroom infrastructure, and the provision of engaging learning environments. These variations reflect deeper systemic challenges, including unequal resource distribution, limited access to professional development, and the ongoing need for pedagogical innovation. However, this study is limited by its reliance on accreditation data as institutional proxies, which does not directly capture students' literacy achievement, classroom interactions, or the sociocultural dimensions of literacy practices. Therefore, future research should integrate accreditation-based analysis with classroom observations, interviews, and student performance data to provide a more comprehensive understanding of literacy culture. Overall, the findings emphasize the importance of moving beyond isolated literacy initiatives toward a more holistic, ecosystem-based approach to educational improvement, where strong foundational practices can be further enhanced through sustained support in teacher development, technology integration, and student-centered learning environments.

Declarations

- Author contribution** : Yulian Dinihari was responsible for the entire research project. She also led the writing of the manuscript and collaborated with the second and third authors. Musringudin participated in the data collection and transcription, while Endry Boeriswati contributed to data analysis and revised the manuscript. All authors approved the final version of the manuscript.
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- Conflict of interest** : All authors declare that they have no competing interests.
- Ethics Approval** : Information on Ethics Approval and informed consent statements are required for all articles published in BAHASTRA since 2026.
- Additional information** : No additional information is available for this paper.

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