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GAPS IN MANAGING BLENDED LEARNING PROCESSES IN BORDER AREA SCHOOLS: EVIDENCE FROM BENGKAYANG, INDONESIA

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ABSTRAK

Kesenjangan pendidikan antara daerah perkotaan dan perbatasan tetap menjadi isu kritis dalam sistem pendidikan Indonesia. Salah satu manifestasi kesenjangan ini adalah pengelolaan proses pembelajaran campuran yang tidak merata. Studi ini bertujuan untuk meneliti kesenjangan dalam pengelolaan proses pembelajaran bauran di sekolah-sekolah daerah perbatasan, dengan menggunakan Kabupaten Bengkayang sebagai konteks analisis. Studi ini menggunakan pendekatan tinjauan pustaka dengan menganalisis artikel jurnal nasional dan internasional, laporan pemerintah, dan data statistik pendidikan yang relevan. Data dianalisis menggunakan analisis tematik untuk mengidentifikasi pola, tantangan, dan karakteristik yang berkaitan dengan pengelolaan pembelajaran bauran di daerah perbatasan. Temuan menunjukkan bahwa implementasi pembelajaran campuran di daerah perbatasan menghadapi berbagai kendala, termasuk infrastruktur teknologi yang terbatas, kesiapan guru yang rendah, dukungan kelembagaan yang tidak memadai, dan kondisi sosial budaya yang belum kondusif untuk pembelajaran digital. Temuan ini menunjukkan bahwa keberhasilan pembelajaran bauran tidak hanya ditentukan oleh ketersediaan teknologi, tetapi juga oleh kualitas pengelolaan pembelajaran yang kontekstual dan realistis. Studi ini diharapkan dapat memberikan kontribusi secara teoritis dan praktis terhadap pengembangan pengelolaan pembelajaran bauran di sekolah-sekolah daerah perbatasan.

Kata Kunci: *Manajemen Pendidikan, Pembelajaran Bauran, Proses Pembelajaran, Sekolah di Daerah Perbatasan, Kesenjangan Pembelajaran Digital*

ABSTRACT

Educational disparities between urban and border areas remain a critical issue within Indonesia's education system. One manifestation of this disparity is the uneven management of blended learning-based instructional processes. This study aims to examine the gaps in managing blended learning processes in border area schools, using Bengkayang Regency as the context of analysis. This study employs a literature review approach by analyzing national and international journal articles, government reports, and relevant educational statistical data. Data were analyzed using thematic analysis to identify patterns, challenges, and characteristics related to the management of blended learning in border areas. The findings indicate that the implementation of blended learning in border areas faces multiple constraints, including limited technological infrastructure, low teacher readiness, insufficient institutional support, and sociocultural conditions that are not yet conducive to digital learning. These findings suggest that the success of blended learning is not solely determined by technological availability, but also by the quality of contextual and realistic instructional management. This study is expected

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to contribute theoretically and practically to the development of blended learning management in border area schools.

Keywords: *Education Management, Blended Learning, Instructional Process, Border Area Schools, Digital Learning Gap*

INTRODUCTION

The development of education in Indonesia has progressed at a relatively slow pace, resulting in significant disparities in educational conditions across regions. Indonesia's geographical characteristics, consisting of diverse cultures and regions separated by vast maritime areas, make the equitable distribution of education particularly challenging. This condition is reflected in the wide educational gaps between urban centers and remote or rural areas, as well as disparities across islands. If these inequalities persist, they may hinder national educational advancement, as underdeveloped regions remain left behind while more advanced areas continue to progress. From an infrastructural perspective, many remote, border, and peripheral areas still experience severe limitations, including the absence of electricity, internet and cellular networks, and adequate transportation access. Consequently, achieving educational equity requires collaborative efforts involving not only educational stakeholders but also government authorities and the broader community. International studies have demonstrated that limited geographical access and inadequate infrastructure are strongly associated with lower educational quality and slower adoption of educational innovations, particularly technology-based learning (de Brito Lima et al., 2021; Mali & Lim, 2021).

One border region examined in this study is Bengkayang Regency, which is located along the Indonesia–Malaysia border. Bengkayang serves as a frontier region and is often regarded as one of Indonesia's outermost areas. Ideally, as a national gateway, Bengkayang should be well-developed and supported by adequate infrastructure to represent Indonesia's progress. However, the reality presents contrasting conditions. These challenges affect not only the social life of border communities but also the educational sector. In some cases, local communities perceive educational development in neighboring countries as more advanced than in their own region, even though such development may not necessarily surpass that of major Indonesian cities such as Jakarta, Bandung, Semarang, or Yogyakarta (Cahyadi et al., 2021).

Although education in border areas requires special attention from the government, educators in these regions cannot remain passive. While infrastructural development is still ongoing, efforts to enhance teacher competence must continue. Such efforts may include targeted training and mentoring programs. Previous research by Purnasari and Sadewo (2021) revealed that educational challenges across Bengkayang share similar patterns, although the specific conditions vary by location. Infrastructure remains a major constraint in achieving educational equity and significantly affects the integration of technology in instructional processes. Notably, their study also found that school accreditation levels do not necessarily guarantee the integration of technology in elementary school learning. Schools with higher accreditation but located far from urban centers may exhibit weaker instructional practices than schools with lower accreditation located in urban areas. This finding indicates that instructional management plays a more critical role than institutional status alone.

In the current digital era, educational institutions are increasingly required to adapt to technological advancements. However, the level of readiness varies across regions. Blended learning, which is relatively common in urban areas, remains unfamiliar in many border regions. Challenges exist not only in its implementation but also in the basic understanding of

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blended learning among educators (Mintii, 2023; Rasheed et al., 2020). As a result, blended learning, which could serve as an initial step toward educational digitalization, remains underutilized in border areas. This condition highlights that not all regions in Indonesia are fully prepared to adopt digital learning practices.

Globally, rapid technological advancements over the past two decades have significantly transformed instructional practices. One widely adopted approach is blended learning, which integrates face-to-face instruction with online learning components. Numerous international studies have reported that well-managed blended learning enhances student engagement, learning flexibility, and academic achievement (Alsalhi et al., 2019; Lapitan Jr et al., 2021; Suwannaphisit et al., 2021). Nevertheless, the success of blended learning is highly dependent on contextual factors. Effective implementation requires not only technological resources but also sound instructional management, teacher digital literacy, institutional support, and parental involvement. Previous studies indicate that weak instructional management and low teacher readiness often hinder blended learning implementation, particularly in resource-limited contexts (Berga et al., 2021; Mali & Lim, 2021).

Most existing studies on blended learning focus on its effectiveness, student perceptions, and learning outcomes, particularly in urban or higher education settings (Yang et al., 2019; Chowdhury, 2020; Huang et al., 2024). Research that specifically examines how blended learning is managed in border area schools remains limited (Gaol & Hutagalung, 2020; Ghimire, 2022). Yet, managerial, infrastructural, and sociocultural factors play a crucial role in determining blended learning success in such contexts. Therefore, this study aims to examine the gaps in managing blended learning processes in border area schools, using Bengkayang Regency as a case study. By synthesizing international literature with local contextual conditions, this study seeks to contribute to both theoretical and practical discussions on contextualized and equitable instructional management.

Unlike most previous studies that focus on the effectiveness and outcomes of blended learning in urban or higher education contexts, this study emphasizes the management dimension of blended learning within border area schools. This focus shifts attention from learning outcomes to how blended learning is planned, organized, and implemented in constrained environments. By examining structural, institutional, and sociocultural conditions in Bengkayang Regency, this study addresses an underexplored context in blended learning research. It also highlights instructional management as a key determinant of successful blended learning implementation in marginalized regions.

METHODS

This literature review was conducted as a thematic and analytical review rather than a purely descriptive narrative review, aiming to identify recurring patterns, gaps, and managerial challenges related to blended learning implementation in border area educational contexts. The method aimed to synthesize and critically examine previous research findings relevant to blended learning implementation and educational conditions in border regions, particularly Bengkayang Regency. Data sources consisted of published national and international journal articles, official government reports, and relevant educational statistical data. The selection of journal articles was guided by the following criteria: (1) studies addressing blended learning, digital learning, or hybrid learning; (2) research examining instructional management, teacher readiness, or educational contexts characterized by limited resources; and (3) publications appearing in reputable journals within the past ten years. International literature was utilized to provide a global perspective on blended learning implementation, while national literature was

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used to contextualize educational policies and practices in Indonesia. Data collection was conducted through systematic searches of academic databases and journal portals, including Google Scholar and national journal repositories. Keywords used in the search process included *blended learning*, *education management*, *border area education*, and *digital learning*.

The identified literature was then screened and selected to ensure relevance to the focus of the study. Data analysis was carried out using thematic analysis, in which findings from the selected literature were grouped into key themes aligned with the study objectives. These themes included educational infrastructure conditions, teacher readiness, institutional support, and sociocultural challenges related to blended learning implementation. The synthesized findings were subsequently linked to the empirical educational context of border areas, particularly Bengkayang Regency, to identify gaps between blended learning practices in urban and border area schools. This literature review approach enabled the researchers to develop a comprehensive understanding of blended learning management across different contexts while situating the educational challenges of border areas within broader educational discourse. Accordingly, the findings of this study are expected to provide both conceptual and practical foundations for developing more contextualized and realistic strategies for managing blended learning in border area schools.

RESULTS AND DISCUSSIONS

Results

The results presented below reflect an analytical synthesis of the reviewed literature rather than a mere aggregation of previous findings, highlighting recurring structural and managerial patterns specific to border area schools. The results of the literature review indicate that the management of blended learning-based instructional processes in border area schools faces complex and interrelated challenges. These challenges are not limited to physical infrastructure constraints but also involve human resource readiness, institutional support, and the sociocultural conditions of local communities. Based on the synthesis of relevant literature and contextual data from Bengkayang Regency, the findings are organized into several key themes. The process of literature synthesis and thematic grouping underlying these findings is summarized in Table 1, which illustrates how recurring issues identified across studies were systematically analyzed and consolidated into major thematic categories.

Table 1. Literature Synthesis Supporting Thematic Findings on Blended Learning Management in Border Areas

No	Recurring Issues Identified in Literature	Evidence from Previous Studies	Contextual Evidence from Bengkayang Regency	Synthesized Analytical Category	Resulting Theme
1.	Unequal educational development in border areas	Border and underdeveloped regions commonly experience limited access to education, weak infrastructure, and uneven educational quality	Large territorial coverage, uneven school distribution, and limited higher education institutions restrict access to quality education in Bengkayang	Educational inequality and access limitations.	Educational Conditions in Border Areas.

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No	Recurring Issues Identified in Literature	Evidence from Previous Studies	Contextual Evidence from Bengkayang Regency	Synthesized Analytical Category	Resulting Theme
		(Cahyadi et al., 2021; BPS, 2021).	Regency (BPS Bengkayang, 2021).		
2.	Low educational awareness and sociocultural influence	Sociocultural dependence on traditional livelihoods contributes to low educational participation and persistence of dropout culture in border areas (Cahyadi et al., 2021; Alsalhi et al., 2019).	Communities rely heavily on natural resources, exhibit low awareness of formal education, and experience relatively high dropout rates, including at the primary level.	Sociocultural barriers to educational participation.	Educational Conditions in Border Areas.
3.	Infrastructure constraints for digital learning	Studies report unstable internet connectivity, limited access to digital devices, and uneven electricity supply as major barriers to digital and blended learning (Cahyadi et al., 2021; de Brito Lima et al., 2021).	Many schools in Bengkayang experience unstable internet access, limited digital facilities, and unequal electricity distribution.	Infrastructure readiness limitations.	Infrastructure Limitations and Institutional Support.
4.	Weak institutional and policy support	Digital learning policies are often insufficiently understood or inconsistently implemented at the school level, with limited and discontinuous professional development programs (Purnasari & Sadewo, 2021).	Limited teacher training related to blended learning management and inconsistent institutional support hinder sustainable implementation.	Institutional readiness gap.	Infrastructure Limitations and Institutional Support.
5.	Teacher readiness challenges in blended learning	Effective blended learning requires teachers' digital competence and instructional	Teachers in Bengkayang still experience difficulties in managing	Teacher competency gap.	Gaps in Blended Learning Implementation.

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No	Recurring Issues Identified in Literature	Evidence from Previous Studies	Contextual Evidence from Bengkayang Regency	Synthesized Analytical Category	Resulting Theme
		management skills (Lapitan Jr. et al., 2021; Mali & Lim, 2021; Suwannaphisit et al., 2021).	technology-based instruction and selecting appropriate blended learning models.		
6.	Technology access disparities between urban and remote areas	Urban schools increasingly adopt LMS, synchronous and asynchronous platforms, and interactive digital media, while border schools rely on basic technology use (Berga et al., 2021; Lapitan Jr. et al., 2021).	Blended learning implementation in Bengkayang remains basic, inconsistent, and limited by infrastructure and access constraints.	Urban–border implementation disparity.	Gaps in Blended Learning Implementation.
7.	Family support and student readiness influence learning success	Parental support and educational awareness significantly influence student engagement and success in blended learning, particularly at primary and secondary levels (Mali & Lim, 2021; de Brito Lima et al., 2021).	Limited parental awareness and support reduce student participation and engagement in digital and blended learning.	Household educational support limitation.	Educational Conditions in Border Areas.

Based on the synthesis presented in Table 1, the findings are further elaborated through thematic discussions to explain how these challenges influence the management of blended learning in border area schools. The thematic organization enables a clearer understanding of the interconnected factors affecting instructional management in border contexts. Each theme represents recurring issues identified across the reviewed literature and contextual evidence from Bengkayang Regency. The following sections present a detailed discussion of each theme to provide a comprehensive interpretation of the conditions and implementation gaps identified in this study.

a. Educational Conditions in Border Areas

Individuals hold different perceptions of education. When viewed from the historical development of Indonesia, education has consistently evolved as an integral part of human life, following the progression of civilization. Many developed countries demonstrate

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strong educational systems, indicating that education serves as a key indicator of national and societal advancement. In these countries, education is widely regarded as a fundamental necessity that cannot be neglected. This condition is reflected in the growing educational demands of society, which in turn drive rapid educational development within a region. Consequently, the advancement of education in a particular area is closely linked to the level of educational awareness and needs of its population. While infrastructure plays a crucial role in educational development (Cahyadi et al., 2021), public awareness and commitment to advancing education constitute equally important indicators.

Bengkayang Regency represents one of Indonesia's border areas that remains categorized as underdeveloped in terms of educational progress and infrastructure. Bengkayang covers an area of approximately 5,396 km² (BPS, 2021), a size comparable to Bali Island, which spans about 5,780 km². Given its vast territory, achieving equitable educational distribution is a considerable challenge, particularly when attempting to align its educational development with that of major Indonesian cities. Furthermore, most areas within Bengkayang lack infrastructure comparable to urban regions. The regency consists of 17 districts and 124 villages, many of which still require substantial development in terms of infrastructure, human resources, and the availability of educational institutions. An overview of the distribution and number of educational institutions across levels in Bengkayang Regency is presented in Table 2

Table 2. Educational Institutions in Bengkayang Regency

Number	School Level	Amount
1	Primary Schools	274
2	Islamic Primary Schools	9
3	Junior high Schools	84
4	Islamic Junior high Schools	6
5	Senior High Schools	30
6	Vocational High Schools	10
7	Islamic Senior High Schools	3
8	Diploma (D3) Higher Education Institutions	1
9	Undergraduate (S1) Higher Education Institutions	2

Source: Central Bureau of Statistics of Bengkayang Regency, 2021

Considering the size of Bengkayang Regency, the number of educational institutions particularly at the higher education level remains insufficient. At the undergraduate level, Bengkayang has only two higher education institutions: Nursing Academy Serukam and Institut Shanti Bhuana, which currently offers four study programs (Management, Entrepreneurship, Primary School Teacher Education, Information Technology, Information System, Agroecotechnology).

In addition to infrastructural limitations, Bengkayang is characterized by strong cultural diversity, with communities that maintain close ties to traditional customs and depend heavily on natural resources. From a cultural perspective, this condition represents a valuable asset and positions Bengkayang as a potential cultural icon of Indonesia. However, this reliance on traditional livelihoods also presents challenges. Communities that depend strongly on nature tend to be more resistant to change, including educational transformation. In Bengkayang, a substantial proportion of the population still exhibits low awareness of the importance of formal education. This condition is supported by the relatively high dropout rates observed in the region, including at the primary school level.

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The occurrence of school dropout at the primary level is particularly concerning, as children at this stage generally demonstrate compliance and are highly influenced by parental guidance. When dropout occurs at such an early stage, it suggests that parental awareness and understanding of educational needs remain limited. In contrast, in urban areas, parents typically encourage, motivate, and support their children to pursue education to the highest possible level. This contrasting condition illustrates how educational awareness shapes educational outcomes. Regions with high public awareness of education tend to exhibit more advanced educational development, ultimately fostering a culture that values learning. Such a culture has not yet been firmly established in Bengkayang. If the dropout culture persists, the region risks falling further behind, making it difficult not only to adopt educational technology but also to achieve national goals such as the 12-year compulsory education program.

These conditions significantly hinder digital transformation in education within Bengkayang. The challenges extend beyond infrastructural limitations to include prevailing mindsets regarding the importance of education. Strengthening educational awareness is therefore essential for fostering a culture that recognizes education as a fundamental human need alongside basic necessities such as food in advancing human civilization.

Currently, educational development in Bengkayang varies across levels. Schools categorized as relatively advanced have only begun introducing digital technology, while schools at lower levels focus primarily on motivating students to remain in school until graduation. This situation indicates that the education system in Bengkayang is not yet fully prepared for digital transformation, and the implementation of blended learning requires a gradual and sustained process. A critical initial step involves enhancing teacher competitiveness and professional capacity so that educators are intrinsically motivated to understand blended learning, its implementation, evaluation, and long-term development. In contrast, blended learning has long been established in major urban areas, where digital innovation has expanded to include augmented reality, virtual reality, and smart learning environments. This disparity highlights the significant educational gap between Bengkayang and major cities in Indonesia.

Consistent with international literature, border areas generally exhibit educational characteristics distinct from those of urban regions. Schools in border areas commonly face limitations in basic educational facilities, including electricity access, internet connectivity, and instructional support infrastructure. These constraints directly restrict the effective use of technology in instructional processes. Bengkayang Regency, as an Indonesia–Malaysia border area, reflects these challenges. Despite having a relatively large number of educational institutions and extensive geographical coverage, access to quality education remains uneven. Infrastructure limitations and difficult geographical conditions prevent equal opportunities for schools to develop technology-based learning. These findings align with previous studies indicating that regional disparities contribute to variations in instructional quality.

Beyond infrastructural factors, the literature also reveals that public awareness of the importance of education in border areas remains relatively low. Sociocultural conditions characterized by reliance on natural resources and traditional economic activities influence educational participation. This situation is reflected in persistent dropout rates, even at the primary education level. Such conditions pose an initial challenge to the implementation of blended learning, which requires active learner engagement and strong family support.

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b. Infrastructure Limitations and Institutional Support

The findings further indicate that infrastructure limitations constitute a major barrier to the management of blended learning in border areas. Unstable internet access, limited availability of digital devices, and uneven electricity distribution are frequently reported obstacles. These conditions hinder the consistent and sustainable integration of technology into instructional practices.

Beyond physical infrastructure, institutional support remains insufficient. The literature shows that policies related to digital learning are not always well understood at the school level. Professional development programs focusing specifically on blended learning management are limited and often lack continuity. As a result, teachers have limited guidance in designing and implementing blended learning that aligns with local conditions.

c. Gaps in Blended Learning Implementation between Urban and Border Areas

Effective instructional processes require careful and systematic planning. Planning constitutes the initial stage of instruction, during which learning objectives, instructional activities, and evaluation procedures are designed. Similar to instructional planning, the implementation of learning activities also requires effective management. Instructional management functions as both a control mechanism and a guiding framework for the stages conducted throughout the learning process. Consequently, the implementation and management of blended learning-based instruction demand a sufficient level of teacher readiness, supported by adequate facilities provided by schools as well as support from students' families. Previous studies have demonstrated that blended learning has a positive impact on instructional processes and learning outcomes (Berga et al., 2021; Lapitan Jr et al., 2021; Mali & Lim, 2021). Blended learning implementation can be further enhanced by integrating diverse instructional strategies. For example, Lapitan et al., (2021) proposed a blended learning model consisting of five instructional components: Discover, Learn, Practice, Collaborate, and Assess (DLPCA). In this model, asynchronous learning activities are facilitated through platforms such as YouTube or pre-recorded instructional videos, while synchronous learning is conducted using video conferencing tools such as Zoom or Google Meet.

These instructional approaches imply that teachers must possess adequate competence in utilizing educational technologies to implement blended learning effectively. Teachers need to be familiar with digital tools and learning platforms so that they can function as key agents in promoting digital transformation in education. In addition to teacher readiness, parental awareness of educational developments and emerging instructional trends is also essential. Parental support enables students to engage fully in blended learning processes, thereby increasing the likelihood of successful learning outcomes. Although parental involvement tends to decrease at the higher education level, it remains a critical factor in sustaining students' motivation at the primary and secondary levels.

Managing blended learning-based instruction requires higher levels of competence compared to conventional teaching approaches. Teachers are expected to possess basic digital skills, including the ability to operate digital devices and select appropriate technologies that align with classroom conditions and student needs. Several studies have confirmed that blended learning produces better learning outcomes than traditional instructional methods (Suwannaphisit et al., 2021). However, this potential has not been fully recognized by many teachers in Bengkayang. Empirical evidence indicates that

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teachers' ability to manage digital learning remains limited in this region (Purnasari & Sadewo, 2021). Additionally, teachers often encounter difficulties in selecting suitable instructional models for blended learning implementation. Historically, blended learning began to gain recognition in the late 1990s, emphasizing a paradigm shift toward more student-centered learning environments that actively engage learners in the instructional process (Alsalhi et al., 2019; de Brito Lima et al., 2021). In Indonesia, blended learning became more widely adopted during the COVID-19 pandemic and was implemented across various educational levels, from primary to higher education. Blended learning also served as a viable solution during the pandemic by reducing physical contact and limiting virus transmission. Nevertheless, in border areas such as Bengkayang, blended learning could not be implemented effectively. One of the primary reasons is that not all students across educational levels have access to appropriate digital devices, compounded by uneven internet connectivity and electricity supply.

The literature review further reveals a significant gap between blended learning practices in urban and border areas. In urban contexts, blended learning has evolved toward more advanced and integrated technological applications, including learning management systems, synchronous and asynchronous learning environments, and interactive digital media. In contrast, in border areas, blended learning is often understood in a limited manner and is frequently reduced to the basic use of digital devices without systematic instructional management. This gap indicates that the primary challenge lies not in the concept of blended learning itself, but in how blended learning is managed and adapted to the specific conditions of border area contexts.

Discussion

The findings highlight that the management of blended learning in border area schools cannot be separated from the broader structural and sociocultural contexts in which learning takes place. These contexts influence how schools plan, implement, and sustain blended learning practices. The observed gaps between urban and border areas are not solely the result of technological shortages. They are also shaped by instructional management practices, teacher readiness, and institutional capacity.

From a theoretical perspective, blended learning is understood as a planned integration of face-to-face and online learning (Byrka, 2017; Sánchez-Gómez et al., 2019; Suwannaphisit et al., 2021) that requires effective instructional management to ensure coherence and learning effectiveness (Fitri & Zahari, 2019; Pence, 2022; Ali, 2025). Previous international studies emphasize that the success of blended learning depends more on how learning is managed than on the mere availability of technology (Alsalhi et al., 2019; Berga et al., 2021). The findings of this study reinforce this perspective by demonstrating that infrastructure limitations in border areas are compounded by weak instructional management and insufficient teacher preparedness. Teacher readiness emerges as a critical factor in managing blended learning. The literature indicates that teachers in border areas, including Bengkayang, are generally at an early stage of digital literacy development. This finding aligns with Mali and Lim (2021), who argue that low teacher digital competence is a major barrier to technology-based learning in resource-limited contexts. Without adequate understanding of blended learning concepts, strategies, and assessment methods, digital learning initiatives risk becoming superficial and unsustainable. Institutional support also plays a crucial role in blended learning management. The findings suggest that professional development programs and policy guidance related to blended learning remain limited in border areas. International research underscores that continuous

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teacher training is essential for effective blended learning implementation (Dangwal, 2017; Hussain et al., 2019; Mustary, 2019). More recent studies further emphasize the importance of context-sensitive and sustained professional development in supporting blended learning practices (Lapitan Jr et al., 2021; Mustapha et al., 2022; Ponniah et al., 2022). The absence of structured institutional support places additional burdens on teachers and contributes to inconsistent instructional practices.

Another important finding concerns the weak relationship between school accreditation status and the quality of blended learning management. This indicates that existing quality assurance mechanisms may not sufficiently emphasize instructional management and digital learning integration. As a result, accreditation alone cannot be relied upon as an indicator of blended learning readiness in border area schools. Sociocultural conditions further influence blended learning implementation, as blended learning requires active learner participation and support from families, particularly when learning extends beyond the classroom (Chituc, 2021; Limone, 2021). The literature further suggests that digital learning success depends on educational ecosystems involving schools, families, and communities (de Brito Lima et al., 2021; Nguyen & Tuamsuk, 2022; Suleimankadieva et al., 2021). In border areas, limited educational awareness among communities poses additional challenges to sustaining blended learning practices.

Overall, the findings demonstrate that blended learning models developed in urban contexts cannot be directly transferred to border areas without contextual adaptation. The management of blended learning in border areas must be flexible, gradual, and responsive to local conditions. These results contribute to blended learning discourse by emphasizing instructional management as a central factor in addressing educational disparities in border regions. These findings imply that blended learning policies and models developed in urban-centered educational systems may be ineffective when directly transferred to border area contexts without adaptive instructional management. Therefore, blended learning should be reconceptualized not merely as a technological innovation, but as a context-sensitive managerial practice that responds to local infrastructural and sociocultural realities.

CONCLUSION

This study demonstrates that the management of blended learning-based instructional processes in border area schools continues to face substantial structural and contextual gaps. These gaps are not solely attributable to limitations in technological infrastructure, but are also influenced by low levels of teacher readiness, insufficient institutional support, and sociocultural conditions that have not yet fully supported the transformation toward digital learning. The findings affirm that the success of blended learning cannot be separated from the quality of instructional management. In border areas such as Bengkayang Regency, blended learning has not been optimally implemented because instructional practices remain predominantly conventional and have not been systematically integrated with digital learning strategies. These conditions indicate that the implementation of blended learning in border areas requires differentiated approaches and cannot be equated with practices commonly applied in urban contexts. Theoretically, this article contributes to the advancement of blended learning scholarship by emphasizing the importance of instructional management perspectives within border area contexts. It extends existing blended learning discourse, which has largely focused on effectiveness and learning outcomes, by positioning instructional management as a critical factor in successful implementation. From a practical standpoint, the findings highlight the need for contextual, gradual, and realistic blended learning development strategies that take into

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account infrastructural conditions, teacher readiness, and community support. Accordingly, the development of blended learning-based instruction in border areas requires not only technological innovation but also strengthened educator capacity, sustained policy support, and the active involvement of multiple stakeholders. These efforts are expected to reduce instructional management gaps and promote more equitable educational quality in border regions. By foregrounding instructional management as a central issue, this study extends blended learning discourse beyond effectiveness-oriented perspectives and offers a contextual framework for understanding digital learning implementation in border and marginalized educational settings.

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