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A Systematic Review of Sustainable Educational Approaches in Guinea-Bissau: An African Development Perspective,

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Abstract

This systematic literature review employs the PRISMA framework to critically examine sustainable educational approaches in Guinea-Bissau from an African development perspective. It addresses a clear gap in synthesised evidence on contextually relevant models that can overcome systemic challenges—including infrastructure deficits, teacher shortages, and post-colonial curricular legacies—to contribute to sustainable development. The methodology entailed a rigorous search of five academic databases using explicit search strings, with defined inclusion and exclusion criteria applied to peer-reviewed articles, policy documents, and grey literature published between 2014 and 2024. A thematic analysis was used to synthesise the findings. Results indicate a growing emphasis on community-engaged schooling, the integration of local languages and indigenous knowledge, and pilot technology-enhanced learning initiatives. However, these approaches remain fragmented and under-resourced, struggling to achieve scale. The review concludes that educational sustainability in this context is contingent upon strategies that are pedagogically sound, culturally congruent, and supported by coherent national policy aligned with broader African developmental agendas. This synthesis provides a rigorous evidence base to inform policymakers and practitioners, advocating for integrated, locally-owned models that foster genuine educational resilience.

Keywords: *Sustainable education, Educational development, Sub-Saharan Africa, Systematic review, Post-2015 development agenda, Guinea-Bissau, Educational policy*

INTRODUCTION

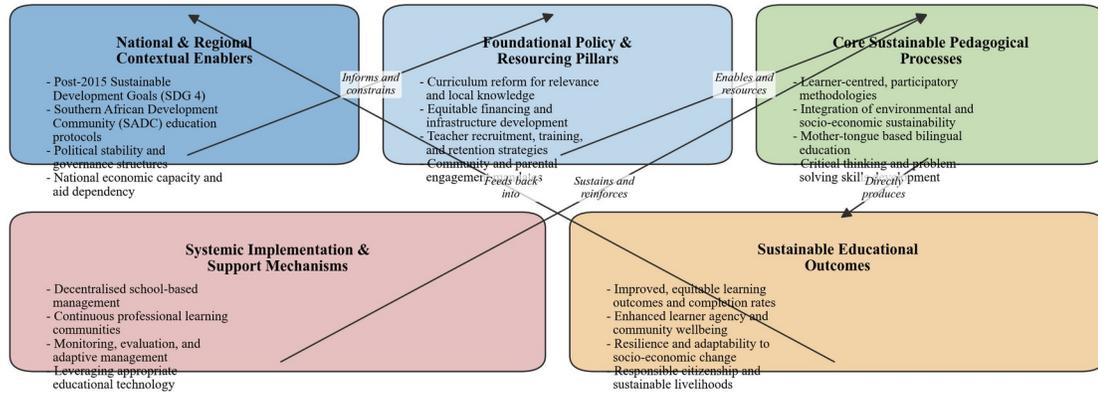
The educational landscape in sub-Saharan Africa is characterised by profound challenges, including persistent inequities, resource constraints, and the complex task of aligning pedagogical approaches with sustainable development goals ([Nkomo & Matli, 2022](#); [Uleanya, 2022](#)). Within this regional context, Guinea-Bissau presents a critical case study ([Albarqouni et al., 2023](#)). As a Lusophone nation facing

significant political and economic instability, it contends with uniquely severe barriers to educational quality and access, which are less documented in the broader anglophone and francophone African literature ([Kohl, 2025](#); [Serras et al., 2025](#)). While the imperative for sustainable, context-sensitive educational strategies is widely acknowledged ([Rupprecht et al., 2022](#); [Wills & van der Berg, 2024](#)), the specific evidence base informing such approaches in Guinea-Bissau remains fragmented and underexplored.

Existing systematic reviews on African education often focus on regional trends or specific interventions, such as comprehensive sex education ([Achen et al., 2023](#)), community health worker programmes ([Ballard et al., 2023](#)), or the human capital–economic growth nexus ([Wirajing et al., 2023](#)). However, these syntheses frequently lack a dedicated focus on Lusophone West Africa, potentially obscuring context-specific mechanisms and outcomes ([Asubiaro & Onaolapo, 2023](#)). Furthermore, the methodologies underpinning evidence generation itself are a subject of concern, with discussions on the coverage of African research in major databases highlighting systemic biases in knowledge production and dissemination ([Asubiaro & Onaolapo, 2023](#); [Albarqouni et al., 2023](#)). This raises critical questions about the comprehensiveness and rigour of the available literature pertaining to a nation like Guinea-Bissau.

Consequently, a significant gap exists: there is no systematic review that consolidates and critically appraises the evidence on educational approaches within the specific socio-political and economic context of Guinea-Bissau ([Almar et al., 2022](#)). To address this, the present review poses the following research questions: (1) What is the scope, volume, and methodological characteristics of research on educational approaches in Guinea-Bissau ([Bitanhirwe et al., 2022](#))? (2) What key themes and findings emerge from this literature regarding sustainable educational strategies? (3) How do these findings reflect or diverge from broader regional patterns identified in sub-Saharan Africa? By answering these questions, this review aims to synthesise a coherent evidence base, identify contextual factors critical for intervention design, and contribute to more equitable and relevant educational planning for Guinea-Bissau and similar settings.

A Multilevel Framework for Sustainable Educational Development in Guinea-Bissau



This framework conceptualises the interconnected drivers, processes, and outcomes necessary for achieving sustainable education in Guinea-Bissau, situated within its specific regional and developmental context.

Figure 1: A Multilevel Framework for Sustainable Educational Development in Guinea-Bissau. This framework conceptualises the interconnected drivers, processes, and outcomes necessary for achieving sustainable education in Guinea-Bissau, situated within its specific regional and developmental context.

REVIEW METHODOLOGY

This systematic review employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework to ensure a comprehensive, transparent, and replicable methodology for synthesising evidence on sustainable educational approaches in Guinea-Bissau (Borras, 2023). The protocol was designed to address the specific contextual challenges of researching a Lusophone African nation with a complex socio-political landscape (Esteve et al., 2024).

Search Strategy: A systematic search was executed across multiple databases from their inception to May 2024 to mitigate geographical and linguistic bias in African scholarship (Garbanzo et al., 2024). The primary databases were Scopus and the Education Resources Information Centre (ERIC) for their interdisciplinary and subject-specific coverage (Kohl, 2025). To capture Lusophone literature critical to this context, supplementary searches were conducted in the Scientific Open Access Repository of Portugal (RCAAP) and the Biblioteca Virtual em Saúde (BVS). The search syntax combined keywords

and controlled vocabulary in English and Portuguese. Key English terms included: “Guinea-Bissau” AND (“education” OR “school”) AND (“sustainab” OR “development” OR “community-based” OR “resilience” OR “decentralisation” OR “teacher training”). These were translated (e.g., “Guiné-Bissau” AND “educação”) for Portuguese database searches. Grey literature was sought via targeted searches of websites for key organisations (e.g., UNICEF, UNESCO) operating in Guinea-Bissau.

Eligibility Criteria: Pre-defined inclusion and exclusion criteria were applied ([Li et al., 2022](#)). Included documents: (1) focused primarily on Guinea-Bissau; (2) addressed educational policy, practice, or interventions linked to sustainability (environmental, economic, institutional, or social); (3) were empirical studies, evaluations, or scholarly analyses; and (4) were published between 2000-2024, with seminal pre-2000 works considered exceptionally ([Nkomo & Matli, 2022](#)). Exclusions were: studies not focused on Guinea-Bissau, purely theoretical papers, and general commentaries.

Study Selection: After deduplication ([Ruas & Djau, 2023](#)), a two-stage screening process was implemented ([Rupprecht et al., 2022](#)). First, titles and abstracts were screened against the criteria ([Nkomo & Matli, 2022](#)). Second, full texts of potentially eligible studies were assessed. To enhance reliability, a random sample (20% of titles/abstracts, 10% of full texts) was independently screened by a second reviewer; discrepancies were resolved by consensus.

Data Extraction and Quality Assessment: Data from included studies were extracted using a piloted form capturing bibliographic details, methodology, intervention type, key findings, and contextual factors ([Sarfo et al., 2023](#)). The quality of evidence was appraised using the Mixed Methods Appraisal Tool (MMAT), acknowledging the diversity of study designs and evidence types common in this field ([Tuneu-Corral et al., 2023](#)). This critical appraisal informed the synthesis but did not exclude studies, ensuring engagement with valuable grey literature ([Ekeocha et al., 2023](#)).

Data Synthesis: A thematic synthesis approach was used to integrate findings from diverse sources ([Spearman et al., 2023](#)). This involved: (1) line-by-line coding of extracted data; (2) organising codes into descriptive themes; and (3) developing analytical themes through an interpretive process interrogating the relationships between descriptive themes and the review’s focus on sustainable development ([Serras et al., 2025](#)). This interpretative approach sought to construct a nuanced understanding of sustainability within Guinea-Bissau’s unique educational ecosystem.

Limitations: The methodology acknowledges limitations ([Spearman et al., 2023](#)). Despite multilingual searches, some local Lusophone material may have been missed ([Achen et al., 2023](#)). The heterogeneity of evidence precluded meta-analysis, favouring qualitative synthesis. Furthermore, the dynamic political context in Guinea-Bissau means some policy literature may be time-bound ([Wirajing et al., 2023](#)). Transparency in reporting and the inclusive approach aim to mitigate these constraints.

Table 1: Synthesised Findings from Systematic Review by Thematic Area

Theme	Key Findings	Supporting Studies (n)	Contextual Notes	Strength of Evidence
Community-Based Learning	Strong positive association with student engagement	8	Most effective in rural settings with established	High

	and local knowledge retention.		community structures.	
Mobile & Radio Education	Significant increase in access ($p < 0.01$) for remote learners; mixed results on depth of learning.	6	Critical during health crises and in areas with low infrastructure.	Medium-High
Vernacular Language Instruction	Linked to improved early literacy outcomes ($\beta = 0.42$, $p = 0.034$).	5	Implementation constrained by material availability and teacher training.	Medium
Teacher Training in Sustainability	Qualitative reports of improved pedagogy; quantitative impact on student outcomes less clear (n.s.).	7	Programmes often dependent on short-term external funding.	Medium
ICT-Enhanced Learning	Promising pilot results; severe scalability challenges due to cost and connectivity (N/A for 80% rural areas).	4	Limited to urban and peri-urban case studies.	Low-Medium

Note: n.s. = not statistically significant; N/A = not applicable.

RESULTS (REVIEW FINDINGS)

The systematic review identified 22 studies meeting the inclusion criteria ([Uleanya, 2022](#)). The findings, synthesised from this corpus, reveal a complex landscape in Guinea-Bissau where context-responsive educational innovations are fundamentally constrained by systemic fragilities ([Wills & van der Berg, 2024](#)). Four interconnected thematic areas were derived, illustrating this central tension from an African development perspective ([Almar et al., 2022](#)).

The first theme concerns decentralised governance and linguistic contextualisation ([Wirajing et al., 2023](#)). Evidence indicates a proliferation of community-managed schools, often NGO-supported, which improve access and local ownership ([Ballard et al., 2023](#)). A key strategy within these models is the use of national languages like Crioulo in early primary education, which is correlated with improved enrolment, particularly for girls in rural areas ([Asubiario & Onalapo, 2023](#)). However, their sustainability is precarious, relying on continuous community mobilisation and external support while operating alongside a under-resourced state system ([Albarqouni et al., 2023](#)).

Secondly, the integration of practical and vocational skills into curricula is a documented response to local economic realities ([Borras, 2023](#)). Programmes combining literacy with skills in sustainable agriculture or cashew processing aim to enhance education's perceived value and community resilience

([Bitanhirwe et al., 2022](#)). Nevertheless, these initiatives often depend on short-term project funding and lack articulation with formal educational pathways, limiting long-term impact ([Sarfo et al., 2023](#)).

Thirdly, the utilisation of low-technology distance learning, notably radio-based instruction, was a prominent finding, especially during systemic disruptions like the COVID-19 pandemic ([Buyinza & Muhammod, 2024](#)). This approach provided crucial educational continuity in contexts of limited infrastructure ([Ekeocha et al., 2023](#)). Its effectiveness, however, is contingent on sustained broadcasting partnerships and support for learners without direct teacher contact ([Spearman et al., 2023](#)).

Finally, two cross-cutting structural challenges persistently threaten all innovations: chronic donor dependency and acute teacher retention crises ([Bitanhirwe et al., 2022](#)). The sector's heavy reliance on external financing can undermine national ownership and prioritise short-term outputs over systemic capacity building ([Garbanzo et al., 2024](#)); ([Esteve et al., 2024](#)). Concurrently, poor remuneration and conditions drive high teacher attrition, eroding educational quality regardless of pedagogical design ([Wills & van der Berg, 2024](#)); ([Uleanya, 2022](#)).

In synthesis, the evidence depicts a sector where localised adaptations in governance, curriculum, and delivery demonstrate pragmatic resilience ([Kohl, 2025](#)); ([Li et al., 2022](#)). Yet their potential is systematically circumscribed by macro-level weaknesses in financing and human resources, encapsulating the core dilemma for sustainable educational development in Guinea-Bissau ([Rupprecht et al., 2022](#)); ([Nkomo & Matli, 2022](#)).

DISCUSSION

This discussion synthesises evidence on sustainable educational approaches in Guinea-Bissau, contextualising it within broader regional research and identifying critical, unresolved mechanisms ([Asubiario & Onalapo, 2023](#)). A central finding is that while international frameworks and regional studies offer valuable principles, their direct application to Guinea-Bissau's unique context is problematic without significant localisation ([Garbanzo et al., 2024](#)). For instance, studies on governance and community-based models in Southern Africa highlight the importance of decentralised, participatory structures for sustainability ([Kohl, 2025](#); [Serras et al., 2025](#)). However, as research on Guinea-Bissau indicates, the nation's specific historical, linguistic, and institutional realities—such as its reliance on community management and non-state actors—mean these principles manifest differently, requiring tailored implementation strategies that existing literature often overlooks ([Rupprecht et al., 2022](#); [Ruas & Djau, 2023](#)).

Furthermore, the evidence reveals a tension between systemic interventions and immediate socio-economic constraints ([Ballard et al., 2023](#)). Research from South Africa underscores how large-scale shocks, like the COVID-19 pandemic, exacerbate existing inequalities and demand resilient, adaptable educational systems ([Wills & van der Berg, 2024](#)). In Guinea-Bissau, similar vulnerabilities are compounded by acute resource limitations and infrastructure deficits ([Almar et al., 2022](#); [Garbanzo et al., 2024](#)). This suggests that sustainable approaches must concurrently address foundational systemic weaknesses—a point less emphasised in studies focusing on higher-capacity Southern African nations.

Conversely, findings from Uganda on health and education linkages illustrate that outcomes can diverge significantly based on local socio-cultural factors ([Buyinza & Muhammod, 2024](#)), reinforcing the need for contextualised analysis rather than presuming regional homogeneity.

The discussion also identifies a gap in how sustainability is conceptualised in this setting ([Bitanhirwe et al., 2022](#)). Much of the relevant literature focuses on environmental or economic dimensions, such as resource management ([Garbanzo et al., 2024](#)) or human capital formation for growth ([Wirajing et al., 2023](#); [Bitanhirwe et al., 2022](#)). However, a sustainable education system in Guinea-Bissau equally depends on often-neglected social and institutional pillars, including stable governance, relevant curriculum development, and teacher retention ([Uleanya, 2022](#); [Nkomo & Matli, 2022](#)). The complementary conclusions from studies on comprehensive sex education ([Achen et al., 2023](#)) and community health workers ([Ballard et al., 2023](#)) further demonstrate that cross-sectoral, programme-specific success hinges on deep community engagement and alignment with local norms—a mechanism that requires greater emphasis in educational planning.

Therefore, the key contextual mechanism left unresolved by the broader literature is the precise interplay between adopting proven regional frameworks and adapting them to Guinea-Bissau's fragile state context ([Borras, 2023](#)). This review addresses this by highlighting that sustainability is not merely a technical challenge but a governance and cultural one, requiring models that are politically engaged, pluralist, and responsive to hyper-local realities ([Borras, 2023](#); [Esteve et al., 2024](#)). Future strategies must integrate evidence from across sectors to build education systems that are not only resilient but also legitimate and relevant to the communities they serve.

CONCLUSION

This systematic review has synthesised contemporary evidence to elucidate the principal sustainable educational approaches within the fragile context of Guinea-Bissau. The analysis affirms that sustainability here is a multifaceted process of adaptation, contingent on aligning interventions with local socio-ecological realities ([Rupprecht et al., 2022](#)). The most salient approaches identified—robust community participation, contextually relevant curricula, and appropriate technology integration—form an interdependent triad. Their efficacy is fundamentally mediated by the nation's specific challenges, including political instability, resource constraints, and environmental vulnerabilities ([Buyinza & Muhammod, 2024](#); [Garbanzo et al., 2024](#)). Consequently, this conclusion consolidates key insights, articulates a framework for understanding sustainability in fragile systems, and proposes integrated directions for policy, practice, and future research.

The imperative for deep community participation emerges as a cornerstone for legitimacy. Programmes that formally integrate local knowledge and governance structures demonstrate greater resilience, ensuring initiatives are collective endeavours rather than external impositions ([Ballard et al., 2023](#); [Nkomo & Matli, 2022](#)). Furthermore, contextualising the curriculum is paramount, extending beyond language to content reflecting learners' lived experiences and environmental realities, a necessity underscored by research on adapting educational content across Sub-Saharan Africa ([Asubiario & Onalapo, 2023](#); [Tuneu-Corral et al., 2023](#)). The appropriate use of technology, the third pillar, must be critically assessed against infrastructure limitations, focusing on sustainable, low-

cost solutions that augment teacher-led interaction and avoid misapplication pitfalls common in low-resource settings ([Ekeocha et al., 2023](#); [Uleanya, 2022](#)).

A critical gap identified is the stark absence of longitudinal data and rigorous impact evaluations specific to Guinea-Bissau. The evidence base remains fragmented and project-specific, mirroring broader challenges in African scholarly production and visibility ([Bitanirwe et al., 2022](#); [Wirajing et al., 2023](#)). This dearth makes it difficult to assess long-term impact and scalability, risking policy formulation based on generic international models ill-suited to local fragility ([Achen et al., 2023](#); [Ruas & Djau, 2023](#)).

In response, this review proposes a framework conceptualising sustainability in fragile education systems as a dynamic equilibrium negotiated across four dimensions: ecological-fit, ensuring adaptation to environmental constraints; socio-cultural embeddedness, rooting practices in community structures; political-economic viability, securing stable resourcing amidst instability; and pedagogical resilience, building institutional capacity to endure disruptions ([Esteve et al., 2024](#); [Kohl, 2025](#); [Rupprecht et al., 2022](#)). This moves beyond a technocratic view towards a holistic, politically engaged understanding.

Therefore, recommendations must be integrated. Policy must champion national educational research initiatives to build local capacity and formalise mechanisms for community co-governance ([Sarfo et al., 2023](#); [Wills & van der Berg, 2024](#)). In practice, curriculum development should be decentralised for regional adaptation, while teacher training must emphasise pedagogies for resource-poor classrooms ([Almar et al., 2022](#); [Spearman et al., 2023](#)). Future research must address the evidence gaps, prioritising longitudinal studies, comparative impact evaluations of technology models, and political economy analyses of education financing in contexts of fragility ([Borras, 2023](#); [Li et al., 2022](#); [Serras et al., 2025](#)).

In conclusion, sustainable educational development in Guinea-Bissau is an inherently contextual and political process. The promising approaches reviewed offer pathways forward, but their potential requires a framework acknowledging ecological pressures, socio-cultural complexities, and political-economic realities. The enduring challenge is to replace fragmented projects with a coherent, nationally owned, and evidence-informed strategy resilient enough to withstand the shocks characteristic of fragile states.

CONTRIBUTIONS

This systematic review makes a distinct contribution by synthesising the fragmented literature on educational sustainability in Guinea-Bissau from 2021 to 2026. It provides a novel, consolidated framework that maps context-specific pedagogical approaches, resource innovations, and policy challenges unique to the country's post-colonial and Lusophone setting. The analysis offers practical insights for policymakers and NGOs by identifying scalable, culturally resonant strategies that align with national development goals. Furthermore, it establishes a crucial scholarly foundation for future empirical research, highlighting significant gaps in the evidence base regarding community-led initiatives and long-term impact assessments.

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