



Experiencing Change: Lived Perspectives on Multimodal Pedagogical Shifts

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Abstract

This phenomenological study investigates the lived experiences of lecturers at a private higher learning institution in Rwanda in integrating multimodal pedagogical resources. Amid national efforts to transition toward a knowledge-based economy and implement English as the medium of instruction, lecturers are challenged to move beyond traditional text-based teaching and incorporate digital, visual, and symbolic modes. Using a purposive sample of eight lecturers, in-depth semi-structured interviews were analyzed through a social semiotic lens, revealing three interconnected themes. First, The Digital Divide as a Semiotic Barrier underscores how unreliable infrastructure and limited technological resources constrain the expressive potential of multimodal teaching. Second, Translanguaging and the Complexity of Meaning-Making highlights lecturers' strategic use of Kinyarwanda, French, and English to support comprehension, particularly when interpreting complex or visually dense content. Third, Resourcefulness in Practice: The Pedagogy of the Immediate illustrates the deliberate deployment of low-tech, embodied, and improvisational strategies—gestures, voice modulation, and instant visuals—to bridge gaps created by systemic constraints. The findings demonstrate that effective multimodal pedagogy in resource-constrained contexts depends less on technological sophistication and more on lecturer agency, pedagogical creativity, and context-sensitive adaptation. Based on these insights, the study recommends targeted professional development to enhance multimodal flexibility, sustainable investment in low-bandwidth infrastructure, and policy adjustments that formally recognize multilingual scaffolding alongside English. By foregrounding the interplay among infrastructure, language policy, and educator agency, this study offers a nuanced understanding of multimodal teaching in private higher education in Rwanda and provides actionable guidance for policymakers, institutional leaders, and educators in similar resource-limited contexts.

Keywords: Educational Change, Lived Experience, Multimodality, Pedagogical Transformation

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Introduction

Rwanda's ambition to attain middle-income status through a transition to a knowledge-based economy has placed increasing demands on the higher education sector to provide high-quality, relevant, and technology-enhanced instruction. This national agenda is reinforced by major investments in Information and Communication Technology (ICT) and the adoption of English as the official language of instruction across all levels of education. Together, these reforms position multimodal pedagogy integrating linguistic, visual, digital, and symbolic modes of communication as a key mechanism for improving teaching effectiveness and graduate competencies.

Despite this policy momentum, significant gaps persist between national aspirations and classroom realities, particularly within private higher learning institutions. Universities, for example, the Institut Catholique de Kabgayi (ICK), play a vital role in expanding access to higher education, especially through flexible programs such as day and holiday studies. However, these institutions often operate with limited ICT infrastructure, overloaded classrooms, and challenges in faculty recruitment and retention. As a result, lecturers are frequently expected to implement multimodal and technology-rich instruction without adequate institutional support, raising concerns about the quality and equity of learning experiences.

While previous research, including the original study, has examined the semiotic representation of mathematical concepts in textbooks and how meaning is constructed through multiple modes, less attention has been given to how these semiotic principles are enacted in real teaching practices at the university level. In the Rwandan higher education context, the effective use of multimodal resources is further complicated by varying levels of digital literacy among lecturers and students, unreliable access to technological tools, and the cognitive and communicative challenges associated with English-only instruction.

Understanding lecturers' lived experiences is therefore critical, as they occupy the intersection where national policy, institutional capacity, and pedagogical theory converge. Motivated by this gap, the present study explores how lecturers in a private higher learning institution in Rwanda experience, interpret, and negotiate the challenges and opportunities of integrating multimodal pedagogical resources into their teaching practice.

Related Literature

The Promises and Pressures of Multimodal Pedagogical Shifts

Globally, the shift towards multimodal pedagogy is championed as a cornerstone of contemporary, student-centered education, leveraging digital, visual, and auditory modes to deepen engagement and construct meaning (Fusilier, 2024). Yet, some scholars argue that adopting multimodal strategies is often overly idealized, with limited empirical evidence of sustained learning gains across diverse contexts. This pedagogical transformation is often driven by national policies, particularly in developing economies, where aligning education with technological advancement and global markets is seen as imperative for development (Mhlanga, 2024). Critics caution that such top-down policy imperatives may overlook local constraints, including infrastructural limitations and unequal access to technology, potentially exacerbating educational inequities. Research, including studies in sub-Saharan Africa, underscores the potential of multimodal resources to make abstract concepts more accessible and to cater to diverse learning preferences (Bennett et al., 2025; Dada, 2025). However, other researchers note that access alone does not guarantee meaningful engagement, highlighting that, in practice, multimodal tools may be underutilized or

misaligned with pedagogical goals. Collectively, this literature establishes that such shifts are rarely straightforward, often creating a tension between aspirational policy mandates and the grounded realities of educational practice, thereby justifying the critical exploration of lived educator experiences to understand both opportunities and systemic challenges (Arora, 2024; Cornelius, 2024).

Contextual Barriers in Resource-Constrained and Linguistically Diverse Settings

Extant research indicates that successful integration of multimodal pedagogy is heavily mediated by contextual factors, particularly in resource-constrained environments (Nurhayati et al., 2025). However, while Nurhayati et al. emphasize structural constraints, they arguably underplay educators' agency in creatively negotiating these constraints. Studies across the Global South frequently identify inadequate ICT infrastructure, unreliable electricity, and limited digital literacy as critical barriers that can negate the theoretical affordances of digital resources (Ajani & Ajani, 2025). Yet, some scholars contend that framing these challenges as insurmountable risks presents a deterministic view, ignoring evidence of successful low-resource innovations in classroom practice.

Furthermore, literature on language-in-education policy highlights an additional layer of complexity: when pedagogical shifts coincide with a mandated change in the language of instruction, the cognitive load on both instructors and students increases significantly (Dai et al., 2024; Skulmowski & Xu, 2022). Critically, while Dai et al. and Skulmowski & Xu focus on cognitive challenges, they may understate the potential for pedagogical adaptation, such as scaffolding and peer support, to mitigate these effects.

The emerging scholarship on translanguaging suggests that the strategic use of multilingual repertoires can be a vital resource for meaning-making (Uribe & Prediger, 2021), yet policy and institutional frameworks often fail to recognize or legitimize such practices, creating a disconnect between theoretical possibilities and classroom realities. This gap underscores the need to interrogate not only structural and cognitive constraints but also the sociopolitical assumptions embedded in monolingual instructional policies.

Educator Agency and Adaptive Practice as a Critical Focus

A growing body of literature focuses on teacher agency and resourcefulness, positioning educators not merely as passive implementers but as active designers of their pedagogical practice (Hinostroza-Paredes, 2023). However, some researchers caution that emphasizing teacher ingenuity can inadvertently obscure structural inequities and the persistent limitations imposed by inadequate institutional support (e.g., limited ICT, overcrowded classrooms), potentially placing undue responsibility on educators rather than on policy or system-level reform. This research stream examines how teachers creatively adapt available semiotic resources—from gestures and bodily movement to improvised low-tech visuals—to achieve pedagogical goals. Yet critics argue that while such adaptations demonstrate resilience, they may not always translate into consistent student learning gains, highlighting a tension between inventive practice and measurable educational outcomes. This pedagogy of the immediate is recognized as a sophisticated form of professional competence, particularly in under-resourced settings, though questions remain regarding the sustainability and scalability of these adaptive strategies across diverse institutional contexts. The current study contributes to this discourse by applying a social semiotic lens to these adaptive practices within the specific context of Rwandan private higher education, offering a nuanced understanding of how lecturers negotiate the intersection of policy pressure, infrastructural limitation, and the fundamental drive to facilitate student comprehension while contending with systemic constraints.

Methods

Research design

This study adopted a phenomenological qualitative research design to gain an in-depth understanding of the lived experiences of a group of individuals regarding a specific phenomenon (Pilarska, 2021). Phenomenology is particularly suited for exploring subjective human experiences, as it emphasizes how individuals perceive, interpret, and make meaning of their world rather than testing predefined hypotheses. In this study, the phenomenon under investigation was the integration of multimodal pedagogical resources into the teaching practices of university lecturers at a Rwandan private higher education institution.

The choice of phenomenology is grounded in its philosophical commitment to uncovering the essence (eidos) of experience, which involves distilling commonalities across participants' perspectives while setting aside (bracketing) the researcher's personal biases and assumptions. This approach enables the study to capture the richness, depth, and complexity of lecturers' adaptive strategies, perceptions, and challenges as they navigate policy pressures, institutional constraints, and pedagogical demands. By focusing on shared lived experiences, phenomenology provides a lens for understanding how multimodal pedagogical resources are enacted in practice, rather than simply how they are intended or prescribed in policy documents. Therefore, this design allows for a holistic exploration of the phenomenon, highlighting both the individual and collective meanings that lecturers attribute to their teaching practices in a contextually specific setting.

Participants

A purposive, criterion-based sample of eight (8) lecturers (four male, four female) from the Faculty of Education at a Rwandan private higher learning institution was deliberately selected to yield rich, relevant insights into the research focus. The selection criteria were rigorously defined to identify participants with the experiential depth necessary for a comprehensive exploration of multimodal pedagogical practices. Specifically, participants were required to: (a) possess a minimum of two years of full-time lecturing experience, ensuring sufficient exposure to institutional teaching demands and curriculum implementation; (b) have experience lecturing courses where non-textual materials—such as presentations, digital simulations, video clips, and diagrams—were routinely incorporated, reflecting engagement with multimodal resources central to this study; and (c) demonstrate willingness and capacity to discuss their pedagogical practices in depth, providing detailed, reflective accounts of instructional decision-making.

All participants were fluent in Kinyarwanda and comfortable conducting the interview in their preferred language (English or Kinyarwanda), with translation support provided by the lead researcher where necessary. This approach ensured accurate capture of nuanced pedagogical experiences and minimized potential language barriers that could compromise data richness. By applying these stringent criteria, the study prioritized information-rich cases capable of illuminating the complex interplay between institutional constraints, policy demands, and lecturers' adaptive teaching practices, aligning with the study's critical social semiotic lens.

Data collection instruments

The primary instrument for data collection in this study was a semi-structured, in-depth interview protocol, deliberately designed to capture the complexity and nuance of lecturers' lived experiences. The protocol comprised open-ended questions aimed at eliciting rich, detailed descriptions of how lecturers engage with multimodal resources in their teaching practice. Sample prompts included: "Describe a time when a non-textual resource (like a diagram or video) was particularly successful or unsuccessful in your lecturing and

why,” and “How has the national shift in the language of instruction influenced your use of visual or digital teaching materials?” Such questions were strategically framed to explore both pedagogical decision-making and the contextual challenges faced by lecturers, thereby aligning with the study’s social semiotic perspective.

Interviews were conducted in private offices on campus, lasting 45-75 minutes and providing sufficient depth for participants to reflect critically on their experiences. All interviews were audio-recorded with participants’ informed consent and transcribed verbatim, ensuring data fidelity and accuracy. For interviews conducted in Kinyarwanda, translations into English were performed by the first author and subsequently verified by a second Kinyarwanda-English bilingual academic to maintain linguistic and conceptual integrity. This rigorous approach to data collection ensures that participants’ voices are authentically represented while enabling in-depth analysis of the semiotic strategies lecturers employ to navigate institutional, linguistic, and technological constraints.

Data analysis

Data analysis was conducted following the systematic steps of the Modified Van Kaam method, as outlined by Bayeta and Eng (2023), ensuring a rigorous and phenomenologically grounded approach. The process began with horizontalization of the data, which involved treating all participant statements as equally significant and listing every statement relevant to the phenomenon under investigation. This step ensured that no potentially meaningful insight was prematurely discounted, providing a foundation for authentic interpretation. Next, the researcher organized these statements into coherent meaning units, grouping together related ideas to capture recurring patterns and salient aspects of the participants’ experiences. These meaning units formed the basis for developing textural descriptions, which articulate ‘what’ happened in participants’ lived experiences, and structural descriptions, which explain ‘how’ these experiences occurred, including the contextual and relational factors that influenced them.

Finally, the analysis synthesized these individual descriptions into a composite essence, identifying overarching themes that capture the shared core of the phenomenon across participants. This step enabled the research to move beyond isolated narratives to a holistic understanding of the phenomenon, highlighting both commonalities and variations in lecturers’ experiences of integrating multimodal pedagogical resources in Rwandan private higher education. By systematically combining horizontalization, meaning-unit development, textural-structural description, and essence synthesis, the study ensured that findings were both empirically grounded and conceptually robust, offering rich insights into the intersection of policy, pedagogy, and practice.

Ethical considerations

Ethical approval was obtained. All participants provided informed consent, acknowledging the voluntary nature of their participation and their right to withdraw at any time. Confidentiality was maintained by assigning pseudonyms (e.g., Lecturer 1, Lecturer 2, etc.) to all participants and by ensuring that any identifying institutional details were anonymized. The collected data securely stored for three years post-publication.

Results and discussions

Results

Table 1: Demographic Profile of Participants

Participant ID	Gender	Experience	Courses with Multimodal Resources	Preferred Language for Interview	Notes on Participation
Lecturer 1	Male	5	Yes	English	Experienced in using digital simulations and diagrams
Lecturer 2	Female	3	Yes	English	Frequently integrates videos and presentations in teaching
Lecturer 3	Male	7	Yes	English	Extensive use of non-textual teaching aids
Lecturer 4	Female	2	Yes	Kinyarwanda	Demonstrates reflective teaching practices with multimodal resources
Lecturer 5	Male	4	Yes	English	Engages students through diagrams and interactive activities
Lecturer 6	Female	6	Yes	English	Incorporates video clips and multimedia simulations regularly
Lecturer 7	Male	3	Yes	English	Uses presentations and low-tech visuals innovatively
Lecturer 8	Female	5	Yes	Kinyarwanda	Actively reflects on pedagogical decisions in multimodal instruction

The analysis of the lecturers' lived experiences revealed three overarching themes that represent the essential structure of navigating multimodal pedagogy within the ICK environment.

Theme 1: The Digital Divide as a Semiotic Barrier

The most persistent challenge described by lecturers was the difficulty of utilizing digital and visual modes due to unreliable or insufficient institutional infrastructure, a problem widely reported in Rwandan higher education contexts. This lack of stable resources created what lecturers referred to as a semiotic barrier, compelling them to rely predominantly on spoken or written modes, even when visual explanations would have been pedagogically more effective. Lecturers emphasized that this barrier significantly constrains the expressive potential of multimodal teaching. For examples:

"I wanted to use a short video clip, a wonderful 3D simulation for the finance course. But the projector failed, and the internet was too slow for streaming. I ended up just describing the complex financial model on the whiteboard. The students lost the visual element, and the meaning became flat, purely linguistic. We lost the power of the image." — Lecturer 3

"The challenge is that the visual mode, which should be fast and clear, becomes a mode of delay. Students come with phones but often no data bundles. I prepare a multimodal presentation, but in the lecture hall I have to print everything because I cannot rely on the institutional Wi-Fi. This is frustrating. The resources are there, but the bridge to the students is weak." — Lecturer 7

These accounts highlight the persistent infrastructural limitations that restrict lecturers' ability to fully enact

multimodal pedagogical strategies, underscoring a structural challenge in the teaching environment. The lecturers' reflections critically signal that despite policy emphasis on ICT integration and multimodal teaching, the practical realities in the classroom often create a gap between intended instructional design and what is deliverable, reinforcing the notion that digital inequities directly shape semiotic possibilities in higher education.

Theme 2: Translanguaging and the Complexity of Meaning-Making

Participants consistently reported that the mandated shift to English as the language of instruction complicated the integration of all other semiotic modes. While English is widely recognized as crucial for global academic mobility, lecturers emphasized that students—and at times faculty—relied on translanguaging—the fluid use of multiple languages (Kinyarwanda, French, and English)—to fully process and articulate complex ideas, particularly those conveyed through visual or multimodal resources. For examples:

“When I show a detailed diagram, say, a process flow chart, the students look confused. I explain it in clear English, but it doesn’t click. The moment I switch to Kinyarwanda, even for just one phrase or key term, the visual suddenly makes sense. The visual mode relies on the linguistic mode for anchoring, and if the anchor language is weak, the entire multimodal meaning-making process collapses.” Lecturer 2

“The policy says English only. But if a student draws a concept map (spatial/visual mode) to explain their understanding, and they use Kinyarwanda labels because the English equivalent is not in their working vocabulary, should I penalize them? The meaning is there, but the ‘mode’ (the language code) is not compliant. This conflict is the daily reality of teaching here.” Lecturer 5

Critically, these accounts highlight a persistent tension between policy mandates and classroom realities, revealing how strict language requirements can disrupt multimodal meaning-making. The lecturers' narratives underscore that the effectiveness of visual and symbolic modes depends on linguistic comprehension, and that rigid adherence to English-only instruction may inadvertently compromise students' ability to fully construct and communicate knowledge.

Theme 3: Resourcefulness in Practice: The Pedagogy of the Immediate

Despite systemic limitations, lecturers demonstrated remarkable pedagogical resourcefulness, highlighting adaptive strategies that prioritize student comprehension over technological sophistication. Participants consistently emphasized the centrality of low-tech, immediate, and body-based modes of instruction as reliable conduits of meaning, particularly in contexts where high-tech resources were unavailable or unreliable. Lecturer 8 explained the embodied nature of their practice:

“My best multimodal tool is my own body. When I teach, I use gesture, spacing, and voice modulation more than any digital slide. If the concept is about flow or distribution, I literally walk across the room, I use my hands to represent volumes. This is the most reliable mode I have, because it requires no electricity, no internet, and the students follow the spoken word and the moving body together.” Lecturer 8

Similarly, Lecturer 4 described the improvisational creativity employed in everyday teaching:

“We are masters of the ‘sudden visual.’ If I need a graphic, I grab the chalk and draw it in five seconds. It is messy, it is simple, but it is present and immediate. This ‘pedagogy of the immediate’ is born from necessity. We know the high-tech multimodal resources exist, but we have adapted to what the local context affords: chalk, voice, and patience.” Lecturer 4

These accounts collectively foreground a critical insight: the lecturers' resourcefulness is not incidental but a deliberate, sophisticated response to contextual constraints, reflecting a form of professional competence that prioritizes effective learning in under-resourced environments.

Discussions

The findings of this study provide a composite essence of the multimodal pedagogical experience at the private Higher Learning Institution (HLI) in Rwanda, revealing a fundamental disjuncture between national aspirations and lived academic practice. While Rwandan policy strongly promotes ICT integration, the lecturers' accounts illustrate that the infrastructural and financial strains typical of private HEIs effectively override the intended affordances of high-fidelity multimodal teaching.

The prevalence of The Digital Divide as a Semiotic Barrier (Theme 1) directly limits the visual and digital modes available for meaning-making, forcing instruction back into a predominantly logocentric (word-focused) framework. This echoes concerns about the failure of IT integration to add value in developing country universities despite substantial investment. For a Social Semiotics perspective, this is not merely a technical failure but a restriction of the semiotic landscape, constraining the range of representational choices available to both the lecturer (designer) and the student (interpreter).

Furthermore, the lecturers' negotiation of Translanguaging and the Complexity of Meaning-Making (Theme 2) highlights a critical intersection of linguistic and multimodal pedagogy. The compulsory use of English, while necessary for global competence, complicates the uptake of visual and digital resources because students lack the foundational vocabulary in the mandated language to fully *anchor* the abstract or technical meanings conveyed by images or diagrams. This finding aligns with discussions of multimodal pedagogy in African contexts, where valuing diverse student resources (including indigenous languages) is essential for equitable access to higher education. The reliance on Kinyarwanda for clarification suggests that the lecturers are skillfully adapting their language mode to prevent meaning collapse.

Finally, Resourcefulness in Practice: The Pedagogy of the Immediate (Theme 3) represents the professional competence of the private Higher Learning Institution (HLI) in Rwanda. By deploying embodied modes; gesture, voice, movement and instant, low-tech visuals, lecturers bypass the systemic deficits. This adaptive strategy demonstrates a pragmatic approach to quality assurance, prioritizing student comprehension over technological compliance. The findings thus suggest that effective multimodal pedagogy in resource-constrained environments relies less on advanced technology and more on the intentional, flexible use of *available* semiotic modes, particularly the spoken word and the human body.

Overall, the findings of this study strongly resonate with existing literature on multimodal pedagogical shifts in resource-constrained higher education contexts, while also extending it through a social semiotic interpretation of lived lecturer experiences. Consistent with global scholarship, multimodal pedagogy is widely recognized as a transformative approach that enhances student engagement and meaning-making (Fusilier, 2024; Bennett et al., 2025). However, as in studies conducted across the Global South, this research confirms that the practical realization of such pedagogical ideals is deeply contingent on institutional capacity and contextual realities (Arora, 2024; Cornelius, 2024).

The theme of The Digital Divide as a Semiotic Barrier aligns closely with prior research identifying infrastructural deficits, unreliable ICT systems, and limited institutional funding as major impediments to effective multimodal integration (Ajani & Ajani, 2025; Nurhayati et al., 2025). While national policies emphasize technological modernization, the present findings reinforce earlier critiques that policy-driven ICT integration often overlooks the semiotic consequences of technological absence; namely, the narrowing

of representational modes available for teaching and learning. From a social semiotics perspective, this study adds depth to existing literature by framing the digital divide not only as a material constraint but as a restriction on the semiotic resources through which knowledge is designed and interpreted.

Similarly, the findings on Translanguaging and the Complexity of Meaning-Making are consistent with scholarship highlighting the cognitive and pedagogical challenges arising from mandated language-of-instruction policies in multilingual contexts (Dai et al., 2024; Skulmowski & Xu, 2022). This study supports emerging translanguaging research that views multilingual practices as essential meaning-making resources rather than pedagogical deficits (Uribe & Prediger, 2021). In alignment with studies conducted in African higher education contexts, the lecturers' strategic use of Kinyarwanda demonstrates how linguistic flexibility enhances access to multimodal content, particularly when students lack sufficient academic English proficiency to interpret visual or technical representations (Dada, 2025). Thus, the findings reinforce calls in the literature for language-sensitive multimodal pedagogy that acknowledges students' full semiotic repertoires.

Finally, the theme of Resourcefulness in Practice: The Pedagogy of the Immediate strongly aligns with literature emphasizing educator agency and adaptive professionalism in under-resourced settings (Hinostroza-Paredes, 2023). Consistent with previous studies, lecturers in this research emerge as active designers of learning, creatively mobilizing embodied, oral, and low-tech visual modes to compensate for technological shortcomings. However, this study extends prior work by illustrating how such adaptive practices function as deliberate semiotic choices rather than mere improvisations. By foregrounding embodied communication as a central pedagogical resource, the findings underscore that effective multimodal teaching in private higher education institutions in Rwanda depends less on technological sophistication and more on intentional, context-responsive semiotic orchestration.

In sum, this study confirms, contextualizes, and extends existing literature by demonstrating that multimodal pedagogy in resource-constrained environments is not a failed reform but a reconfigured practice one shaped by infrastructural realities, linguistic complexity, and lecturer agency. Through a social semiotic lens, the findings contribute to a more nuanced understanding of how multimodal meaning-making is negotiated in practice, offering valuable implications for policy, professional development, and future research in similar higher education contexts.

Conclusion and Recommendation

Conclusion

This phenomenological study highlights the complex and often paradoxical experiences of lecturers implementing multimodal pedagogy at a private Higher Learning Institution (HLI) in Rwanda. The findings reveal a lived reality shaped by both resource limitations and linguistic challenges, where the national drive for digital transformation frequently collides with the practical constraints of unreliable infrastructure and English-only instruction. Notably, effective meaning-making emerges not from high-tech tools but from the lecturers' inventive, embodied, and contextually adaptive practices, reflecting a sophisticated professional resourcefulness. These insights underscore the critical role of human agency and pedagogical creativity in bridging the gap between policy aspirations and classroom realities, offering valuable implications for supporting multimodal teaching in resource-constrained higher education contexts.

Recommendations

Based on the findings of this study, several interconnected recommendations are proposed to strengthen multimodal pedagogy in private higher education institutions. First, institutional leaders should prioritize targeted and sustainable investments in stable, low-bandwidth infrastructure, such as reliable electricity and locally hosted or pre-loaded digital content, rather than costly high-bandwidth technologies that are difficult to maintain in resource-constrained contexts.

Second, professional development programs for lecturers should emphasize multimodal pedagogical flexibility, including the deliberate use of translanguaging strategies to support meaning-making when complex concepts are conveyed through visual or digital modes. Such training should explicitly recognize and legitimize low-tech, embodied, and improvisational practices—often described as a “pedagogy of the immediate”—as valid and effective forms of multimodal instruction.

Finally, higher education policymakers and institutional management, including the Higher Education Council (HEC), should reconsider rigid language policies by formally acknowledging the strategic use of Kinyarwanda and French as essential scaffolding resources alongside English. This approach ensures that student comprehension and learning outcomes are prioritized over strict linguistic compliance, particularly when interpreting technical or visually dense multimodal content.

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