

European Scientific Journal, *ESJ*

August 2026

European Scientific Institute, ESI

The content is peer reviewed

ESJ Humanities

August 2026 edition vol. 22, No. 23

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ISSN: 1857-7431 (Online)

ISSN: 1857-7881 (Print)

Generativity is a Core Value of the ESJ: A Decade of Growth

Erik Erikson (1902-1994) was one of the great psychologists of the 20th century¹. He explored the nature of personal human identity. Originally named Erik Homberger after his adoptive father, Dr. Theodore Homberger, he re-imagined his identity and re-named himself Erik Erikson (literally Erik son of Erik). Ironically, he rejected his adoptive father's wish to become a physician, never obtained a college degree, pursued independent studies under Anna Freud, and then taught at Harvard Medical School after emigrating from Germany to the United States. Erickson visualized human psychosocial development as eight successive life-cycle challenges. Each challenge was framed as a struggle between two outcomes, one desirable and one undesirable. The first two early development challenges were 'trust' versus 'mistrust' followed by 'autonomy' versus 'shame.' Importantly, he held that we face the challenge of **generativity** versus **stagnation in middle life**. This challenge concerns the desire to give back to society and leave a mark on the world. It is about the transition from acquiring and accumulating to providing and mentoring.

Founded in 2010, the European Scientific Journal is just reaching young adulthood. Nonetheless, **generativity** is one of our core values. As a Journal, we reject stagnation and continue to evolve to meet the needs of our contributors, our reviewers, and the academic community. We seek to innovate to meet the challenges of open-access academic publishing. For us,

¹ Hopkins, J. R. (1995). Erik Homburger Erikson (1902–1994). *American Psychologist*, 50(9), 796-797. doi:<http://dx.doi.org/10.1037/0003-066X.50.9.796>

generativity has a special meaning. We acknowledge an obligation to give back to the academic community, which has supported us over the past decade and made our initial growth possible. As part of our commitment to generativity, we are re-doubling our efforts in several key areas. First, we are committed to keeping our article processing fees as low as possible to make the ESJ affordable to scholars from all countries. Second, we remain committed to fair and agile peer review and are making further changes to shorten the time between submission and publication of worthy contributions. Third, we are looking actively at ways to eliminate the article processing charges for scholars coming from low GDP countries through a system of subsidies. Fourth, we are examining ways to create and strengthen partnerships with various academic institutions that will mutually benefit those institutions and the ESJ. Finally, through our commitment to publishing excellence, we reaffirm our membership in an open-access academic publishing community that actively contributes to the vitality of scholarship worldwide.

Sincerely,

Daniel B. Hier, MD

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Shaping Saudi Arabia's National Image Under Vision 2030: An Appraisal Analysis of the Saudi Minister of Tourism's Davos Discourse

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[Doi:10.19044/esj.2026.v22n23p1](https://doi.org/10.19044/esj.2026.v22n23p1)

Submitted: 22 July 2026
Accepted: 15 August 2026
Published: 31 August 2026

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OPEN ACCESS

Cite As:

Ali Alshammari, F. (2026). *Shaping Saudi Arabia's National Image Under Vision 2030: An Appraisal Analysis of the Saudi Minister of Tourism's Davos Discourse*. European Scientific Journal, ESJ, 22 (23), 1. <https://doi.org/10.19044/esj.2026.v22n23p1>

Abstract

This study aims to explore the Saudi Minister of Tourism's discourse on the image of Saudi Arabia under Vision 2030. It examines the panel discussion given at the Saudi House pavilion at the World Economic Forum in Davos, 2025, a 17-minute transcript with 53 evaluative tokens. This investigation is based on Appraisal Theory (Martin & White, 2005) and the Attitude system is investigated, which consists of Affect, Judgement, and Appreciation, and employs a qualitative single-case design in which the transcript is coded for attitudinal resources to explore the construction of a national image in evaluative language for an international audience. The analysis revealed that the three subsystems were fairly balanced, with none dominant, and that Judgement was realised mainly as Social Esteem and largely invoked, while Appreciation focused on the value of the sector rather than its sensory appeal. The Minister uses all three subsystems to show Saudi Arabia as an able and ambitious country and presents Vision 2030 as the frame enabling the sector's growth. The study concludes that the marginality of Judgement reflects the consumer-promotional genre rather than tourism discourse itself, with Judgement becoming central in this political-economic context.

Keywords: Appraisal Theory, Attitude, national image, tourism discourse, Saudi Arabia

1. Introduction

The language of the brochures, travelogues, and other publicity materials associated with tourism, known as tourism discourse, depicts and represents the destinations in a value-laden and ideologically constructed manner (Jalilifar & Moradi, 2019). It is more than a destination sales business. It has the power to filter the information it highlights and thus to frame it, which can alter foreign publics' perceptions of a country, its image, thoughts, feelings, and judgments about it (Boulding, 1959). This is more obvious when this kind of discourse is not communicated through the traditional promotion system, but rather at a high-level political-economic forum, where an international audience of decision-makers links the destination's promotion to the representation of a national image. According to Boulding (1959), national image can be defined as the overall cognitive, affective, and evaluative framework by which a public views a country (pp. 120–121). He did not regard it as a neutral representation of reality, but as a made-up one. The concept of national image is very much related to nation branding, which Fan (2010, p. 101) defines as "a process of creating, monitoring, evaluating, and managing a nation's image to enhance its reputation among an international audience".

At the level of language, it is manifested by frequent, repeated language choices, and the expression of feelings, opinions, and judgements represents the positions in which a country is presented (Liu et al., 2022). Western coverage of Saudi Arabia has long centred on a narrow set of issues, while the Kingdom has worked to build a new image in line with Vision 2030 through its engagement in major international events (Tahat et al., 2025). The Vision 2030 strategy, which was introduced in 2016, sees tourism as a key pathway for diversifying the economy and for changing the country's perception (Kingdom of Saudi Arabia, 2016). Tourism discourse has received limited attention from research on the language of evaluation, and the work that exists has concentrated on written promotional texts (Jalilifar & Moradi, 2019). The Attitude system has rarely been applied to the study of how a national image is created by means of the tourism discourse, especially when it comes to the intersection point between tourism promotion and political communication, which is the case in this study in Saudi Arabia.

The purpose of this study is to understand the construction of Saudi Arabia's national image through Attitude resources (Affect, Judgement, and Appreciation) in the Minister of Tourism's 2025 Davos panel discussion. The following research question guides this study: In what ways does the use of Attitude resources in the 2025 Davos panel discussion by Saudi Arabia's Minister of Tourism aid in the construction of Saudi Arabia's national image?

2. Literature Review

2.1 Appraisal Theory and Tourism Discourse

Appraisal, a framework within Systemic Functional Linguistics, analyses how speakers express evaluation through Affect, Judgement, and Appreciation (Martin & White, 2005). It has been applied extensively across genres, among them academic, journalistic, and narrative discourse, and this body of work has shown such discourses to be value-laden and ideological rather than neutral. Tourism discourse, by contrast, has received scant attention from research on the language of evaluation (Jalilifar & Moradi, 2019). In tourism texts, research has repeatedly found Appreciation to be the dominant category and Judgement a marginal one. Wu (2018) showed that the Hangzhou and London tourism websites used Appreciation to assess the cities, with hardly any expression of emotion, focusing on the places rather than the people.

Similarly, in their social media analysis of tourism branding in Anhui, Du et al. (2026) identified Appreciation as the dominant component and Affect and Judgement as limited components, and Santosa et al. (2026) identified Appreciation in the online heritage tourism texts, while Affect and Judgement were absent in the texts. Other Appraisal-based studies in the field of tourism promotion focus on Appreciation and Affect (Mocini, 2013). However, as Wu (2018) suggested, the object of evaluation in this instance is place instead of people, and this study asks if this lack is part of tourism discourse or is unique to consumer promotional genres in the context of a place where the purpose is not consumer promotion.

Linguistic work on national image has relied largely on word frequency and collocation rather than on evaluative meaning; Liu et al. (2022), by contrast, used Attitude resources to examine how Chinese Foreign Ministry spokespersons constructed a national image during COVID-19, with Judgement prominent as they defended China's conduct.

2.2 National Image, Tourism, and Vision 2030

National image is the cognitive and evaluative image of a country, both its own and others (Boulding, 1959) and is closely related to nation branding as a state-led process that shapes the construction towards improving the country's image and soft power (Fan, 2010). The present study operates from a linguistic perspective, viewing it as a construction using evaluative language. Vision 2030, launched in 2016, designates tourism a promising sector for diversifying the economy beyond oil and reshaping the national image (Kingdom of Saudi Arabia, 2016). Alangari (2022) notes that representations of the Kingdom in Western media once relied on stereotypical images of camels, Bedouins, and an unchanging desert, and analyses how the Visit Saudi website translates culture-specific items for international audiences, showing

translators foreignising Saudi traditions and food to grant access to the culture. Alfurayh (2025), examining the linguistic landscape of Vision 2030, found language central to how Saudi Arabia communicates identity and heritage while opening to international tourism. Both approached tourism image construction without Appraisal, and through written text rather than spoken discourse.

Appraisal has been applied to national image in political and diplomatic settings. Liu et al. (2022), mentioned above, is one such example, and Li and Zhu (2020) similarly used Appraisal to examine how Chinese political discourse appraises Self and Others, showing that appraisal resources are used, sometimes implicitly, to construct a "Self versus Other" ideological structure. In the Saudi context, Almushayqih (2022) (unpublished MA thesis, which compares UN speeches of Barack Obama and Saudi Foreign Minister Al-Jubeir) found Judgement realised primarily as Social Esteem.

Western reporting of Saudi Arabia has long centred on a thin set of issues, while the Kingdom has worked to build a new appearance in line with Vision 2030 through its engagement in major international events (Tahat et al., 2025). The review identifies a gap at the confluence of three areas.

These strands have developed separately. Appraisal research on tourism has worked mainly on consumer-promotional texts, where Judgement is marginal; research on national image has worked on diplomatic and media discourse, where Judgement is prominent but tourism plays no part; and research on Saudi Arabia's tourism image has approached it through translation and linguistic landscape rather than evaluative language. Tourism discourse addressed to a political-economic audience sits between them, and to the best of the researcher's knowledge, the Attitude system has not been applied to it in the Saudi case, where tourism carries a national mandate under Vision 2030. The present study aims to examine Attitude resources in the Minister of Tourism's Davos speech.

3. Methodology

3.1 Research Design and Analytical Framework

The design of this study is a qualitative single case, appropriate for discourse analysis because it is not a matter of 'counting' the evaluative meanings in the Minister's discourse but of interpreting them (Creswell, 2014). In line with Yin (2014), one case has been selected just because it is critical or revelatory and this case is both; it will enable access to high-level discourse in which Saudi Arabia's national image is produced for an international audience under Vision 2030. The study aims at analytical and not statistical generalisation.

The analytical lens of choice is the Attitude system of Appraisal Theory (Martin & White, 2005), the interpersonal resources available for

speakers to express evaluation. Attitude is defined as a combination of Affect (emotional responses), Judgement (assessments of behaviour and character, Social Esteem and Social Sanction), and Appreciation (evaluation of things). Both inscribed (explicit) and invoked (implied) values can be positive or negative (Martin & White, 2005, pp. 35, 42–56).

Based on Martin's explanation of coupling as the way of combining meanings of system networks (Martin, 2008b, as cited in Liu, 2018), the analysis is based on evaluative coupling, which is the association of an attitudinal value with its ideational target (Liu, 2018). This not only documents what is assessed, but also the entity to which the assessment is linked. The operationalisation as applied to the present study does not go so far as to extend to the reader affiliation, which is Liu's wider concern.

3.2 Data

Data were obtained from the transcript of a panel discussion with Ahmed Al-Khateeb (Saudi Arabia Minister of Tourism) at the World Economic Forum Annual Meeting in Davos (24 January 2025). The conversation lasted 17 minutes and 55 seconds (2,342 words) in English and was broken into five sections related to moderators' questions. The video is from the official YouTube channel of the Saudi Ministry of Economy and Planning and a transcript was created and manually verified for accuracy. The case was chosen because of the role of the speaker and the fact that Davos is a platform where national image is marketed to the international community through Vision 2030. The session was part of the 'Saudi House' stand, which is the official platform of the Kingdom of Saudi Arabia at Davos.

3.3 Analytical Procedure

The transcript was broken into sentences; where evaluative meaning extended beyond the clause, it was divided into the smallest possible units; greetings, repetitions and fillers were omitted; and full grammatical constructions were preserved for context. The evaluative words in the clause were used as the basis for coding, and borderline cases were settled by the use of co-text. Only clauses which contain an evaluative meaning were coded; for example, clauses with a bare obligation or procedural direction, but lacking an evaluative word, were not coded as Attitude. Modal verbs (should, have to, must, can and may) were not coded as Attitude in their own right. Modality is a grammatical resource distinct from lexicalised attitude on the grammar–lexis cline described by Martin and White (2005, pp. 54–55), and such modals function dialogically as Engagement resources that open dialogic space rather than as attitudinal evaluations (White, 2015). Attitude was therefore coded only from lexical evaluative items: where a modalised clause also contained such an item, that item was coded and the modal itself was not. If a

performative sentence had an evaluative word in it, such as "beauty" in "I invite you to explore the beauty of Saudi Arabia", it was coded; plain ritual performatives were not. If one clause contained multiple evaluative items with multiple targets, each evaluative item was coded separately. Each subsystem item was then counted according to the orientation and mode of realisation and read according to the national image it constructs. Each item was evaluated against its ideational target and a recurrent relation between a value and the same target was analysed with respect to the image that it creates. The coding was checked for consistency by a second coder, also knowledgeable in discourse analysis, who independently coded the 53 Attitude instances. Exact percentage agreement was 88.7% (47 of 53); agreement was strongest for polarity (100%) and the broad Attitude domain (96.2%), while the remaining disagreements concerned borderline distinctions between Affect and Judgement, Appreciation and Judgement, and inscribed versus invoked realisation, and were resolved through discussion.

4. Findings

Following coding and based on Martin and White's (2005) appraisal subsystems, the frequencies of the Affect, Judgement and Appreciation resources were determined.

Table 1: Frequency of Attitude Resources

Type of attitude	Positive	Negative	Total
Affect	11	3	14 (26.4%)
Judgement	19	0	19 (35.8%)
Appreciation	20	0	20 (37.7%)
Total	50	3	53 (100%)

The result of the analysis found 53 cases in the discourse of the Minister, as shown in Table 1. Appreciation was the most common subsystem (20 cases, 37.7%), followed by Judgement (19 cases, 35.8%) and Affect (14 cases, 26.4%). While the most common was Appreciation, the balance of the three subsystems was fairly even, and no one subsystem stood out as dominating the Minister's evaluative discourse. The results of each subsystem are presented in detail as shown in the following sections.

4.1 Appreciation

Table 2: Frequency of Appreciation Resources

Subtype	Count	%	Inscribed	Invoked
Valuation	14	70.0	11	3
Reaction	4	20.0	4	0
Composition	2	10.0	2	0
Total	20	100	17	3

The most common resource is Appreciation (37.7% of the cases, 20 instances). Valuation predominates (14 of 20) and is also followed by Reaction (four) and Composition (two), as seen in Table 2. The Minister primarily evaluates the value of the sector, describing tourism as "a very important industry", "a very promising sector" and "one of Vision 2030's pillars". Reaction is about the destination's pull ("beauty of Saudi Arabia", "beautiful Red Sea"), and Composition is about making the journey "seamless." Almost all Appreciation is inscribed (17 of 20) and positive. The emphasis on valuation over Reaction implies that Saudi Arabia is not so much a picturesque tourist spot as an area of economic value and strategic significance.

4.2 Judgement

Table 3: Frequency of Judgement Resources

Subtype	Count	%	Inscribed	Invoked
Capacity	12	63.2	4	8
Tenacity	5	26.3	2	3
Propriety	2	10.5	1	1
Normality	0	0.0	0	0
Total	19	100	7	12

The second most common resource was judgement with 19 occurrences (35.8%). Table 3 reveals that Capacity (12 of 19) takes the lead, followed by Tenacity (five) and Propriety (two), and none of Normality. The Minister primarily highlights the country's capabilities and accomplishments, particularly regarding the "highest growth among all the G20 countries", a "young" and "well-educated" populace and a "high-tech" workforce. The two examples of Propriety evaluate Saudi hospitality ("very hospitable and very welcoming"), whereas the examples of Tenacity refer to resolve and ambition ("a very ambitious nation", "we should be very competitive"). All Judgement is positive, and most of it is invoked (12/19), which typically comes across in information and statistics rather than in direct statements. The focus on Capacity and Tenacity depicts Saudi Arabia as a competent and ambitious nation, where its people are judged on their ability and ambition and not on their moral standing.

4.3 Affect

Table 4: Frequency of Affect Resources

Subtype	Count	%	Positive	Negative
Inclination	5	35.7	5	0
Satisfaction	3	21.4	3	0
Disinclination	2	14.3	0	2
Happiness	2	14.3	2	0
Security	1	7.1	1	0

Dissatisfaction	1	7.1	0	1
Total	14	100	11	3

With 14 instances, Affect is the least frequent resource (26.4%). Inclination is dominant with five, followed by Satisfaction with three, Disinclination with two, Happiness with two, Security with one and Dissatisfaction with one, as shown in Table 4. Most of Affect conveys the Minister's own desires and reactions, not the nation's: a desire to connect with people ("I enjoy talking to the waiters," "I want to see the concert") and to make the trip as seamless as possible for the visitor ("I want to make the journey seamless"). The three negative cases are all instances of resistance to over-automation ("I don't want a robot to serve me," "I don't want to shop in airports"). The Affect is almost entirely positive (11 of 14) and inscribed. It is also very personal, which makes the communications give the impression of person-to-person contact, which is a very important part of Saudi tourism.

4.4 Invoked Realisation

Across the data, there were more invoked realisations than inscribed, most notably in Judgement (12 of 19). The Minister is more likely to imply than assert capability: growth rates, amounts invested and numbers of visitors are evaluated, and the Saudi's competence is demonstrated rather than asserted.

4.5 Evaluative Coupling

According to Liu (2018), coupling is an added component of the attitudinal value and its ideational target; thus, the analysis not only reflects the evaluation of the value, but also the entity to which the value is coupled. Positive evaluation couples are found consistently across speech and used with a small number of targets. Positive Judgement links with Saudi Arabia and its people, bringing together capability and ambition to the country ("we grew by 70%," "a young, ambitious nation"). Positive Appreciation bonds with the tourism industry ("a very important industry", "a very promising sector") and with Vision 2030, bonding worth to the reform agenda ("one of Vision 2030's pillars"). By repeated coupling of these units, positive value is always attributed to the nation, its sector and its reform programme; in this way, the discourse constructs the national image for Saudi Arabia.

Discussion

The three subsystems are relatively balanced (Appreciation 37.7%, Judgement 35.8%, Affect 26.4%) and none is the dominant one. It is different from the tourism pattern, which is dominated by Appreciation and in which Judgement is only marginal (Du et al., 2026; Wu, 2018). Judgement here is

mostly substantial and Appreciation is Valuation: the Minister is assessing the value of the industry and the ability of the country as opposed to the sensory experience of the place. This provides the answer to the question posed in the review: Is Judgement's marginal role built into the discourse of tourism in general or is it a characteristic of the consumer-promotional genres of discourse? The present case indicates the latter: the discourse is directed at a political-economic audience, not at consumers, and hence it lends credibility to Judgement, as the speaker does not comment on consumer objects, but on institutions and the conduct of a nation.

The Judgement resources are almost exclusively Social Esteem and only two of them are Social Sanction (propriety) and no veracity: Saudi Arabia is judged on its capabilities, not on moral behaviour. This is in line with Almushayqih (2022), who identified esteem-dominant Judgement in Saudi political discourse (albeit diplomatic data), and with Liu et al. (2022), whose analysis of political discourse likewise foregrounded Judgement. In both respects, the Davos speech patterns are in the political rather than the promotional register. The majority of Judgement is called upon (12 out of 19) and competence is shown through figures, not stated. Although the least common, Affect is largely the Minister's own, and his is the voice of a person with commitments, not an institutional voice.

The couplings display the interconnections of these resources and repeatedly link positive assessment to the same targets. The Minister's vocabulary also reflects that of the Vision 2030 document, which lists tourism among its "promising sectors" that are to become "new pillars" of the economy (Kingdom of Saudi Arabia, 2016, p. 43); by using this terminology, he is able to meld his discourse with the state's positioning and present the promotion of tourism as the creation of the national image. He also frames Vision 2030 as the scaffolding that enabled this growth to happen, connecting the sector's growth to the reform agenda ("with Vision 2030 we decided to unlock new sectors... since we have been growing very, very fast"). Taken together, these patterns clarify how the Minister constructs Saudi Arabia's national image for a political-economic audience. Rather than selling scenery, the discourse foregrounds the country's competence and ambition (Judgement) and the strategic worth of the sector (Appreciation: Valuation), while personal Affect lends the account a human, first-person voice. Because these positive evaluations are repeatedly coupled with the same targets — the nation, the tourism sector, and Vision 2030 — the image that emerges is that of an able, ambitious country whose tourism growth is underwritten by a national reform agenda. This is what distinguishes political-economic tourism discourse from consumer-promotional texts: evaluation is directed at institutions and national conduct rather than at the tourist experience.

Conclusion

This study analysed the process that the Saudi Minister of Tourism employed to **construct** Saudi Arabia's national image at the World Economic Forum in Davos by using Attitude resources. The distribution was fairly even (Appreciation 37.7%, Judgement 35.8%, Affect 26.4%). Judgement was high and largely in terms of Social Esteem, that is, the nation was able and aspiring, and was almost invariably made by quotation rather than by bald assertion. Evaluative couplings bonded positive evaluation to the nation and the tourism sector, and presented Vision 2030 as the frame enabling the sector's growth. The study provides three contributions: It extends the idea that Judgement is marginal to the discourse of tourism (Du et al., 2026; Wu, 2018) by demonstrating Judgement's marginality to the consumer-promotional genre rather than to the discourse of tourism itself, and how it becomes the central element within a political-economic context. It adopts evaluative coupling (Liu, 2018) to illustrate how the image is established by consistent targets of positive evaluation. Moreover, to the researcher's knowledge, it is the first use of the Attitude system in the context of the Saudi tourism discourse at a political-economic forum. The study only includes one speech by one speaker at one forum, and only the Attitude system was explored, not Engagement or Graduation. Coupling was used in a restricted way as per Liu (2018); no wider affiliation analysis was used. A further limitation is the interpretive nature of Appraisal coding: certain boundaries — notably Affect versus Judgement and inscribed versus invoked realisation — are inherently fuzzy, and these accounted for the small number of inter-coder disagreements. Comparing forums or speakers or expanding analysis to Engagement and Graduation could be done in future work.

Conflict of Interest: The author reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The author did not obtain any funding for this research.

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Alice in Wonderland on Screen: A Feminist and Symbolic Analysis of Disney's 1951 and Tim Burton's 2010 Adaptations

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[Doi:10.19044/esj.2026.v22n23p13](https://doi.org/10.19044/esj.2026.v22n23p13)

Submitted: 16 July 2023
Accepted: 26 August 2026
Published: 31 August 2026

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Cite As:

Hasanoglu, B. (2026). *Alice in Wonderland on Screen: A Feminist and Symbolic Analysis of Disney's 1951 and Tim Burton's 2010 Adaptations*. European Scientific Journal, ESJ, 22 (23), 13. <https://doi.org/10.19044/esj.2026.v22n23p13>

Abstract

This comparative study provides a critical analysis of Lewis Carroll's classic heroine, Alice, as interpreted through two landmark cinematic adaptations: Walt Disney's animated film *Alice in Wonderland* (1951) and Tim Burton's live-action reimagining *Alice in Wonderland* (2010). Utilizing a theoretical framework grounded in feminist criticism and symbolic analysis, the paper examines how both adaptations reflect, subvert, or reimagine Victorian social norms, gender roles, and mentality. Disney's 1951 adaptation presents Alice as a polite, curious, and imaginative child whose resistance remains largely within the domestic and childlike sphere, serving as a subtle critique of Victorian societal rigidity. Burton's 2010 adaptation, by contrast, presents Alice as a more autonomous heroine who rejects institutionalized marriage and assumes an active heroic role. Apart from that, his adaptation transforms Alice into an autonomous, non-submissive heroine who claims her identity in the most direct and overt way, rejects institutionalized marriage, and slays the Jabberwocky, the monster of the underland. By contrasting these two visual representations, this paper illustrates the evolution of Alice from a well-mannered Victorian observer to an empowered feminist figure, highlighting how cinematic adaptations recontextualize classic literature to reflect shifting cultural paradigms regarding female autonomy in the most deserved way.

Keywords: Alice in Wonderland, Walt Disney, Tim Burton, Feminist Criticism, Symbolism, Comparative Adaptation Analysis

Introduction

Alice's Adventures in Wonderland is a world-renowned, fictional, British children's book with its fantastical tales and riddles by Lewis Carroll. As stated by Bauer and Lowne (2026) "Appearing at a time when children's literature generally was intended to teach moral lessons, the book at first baffled critics, who failed to appreciate the nonsense that so captivated its young readers" (para. 3). Being translated into more than 174 languages, and apart from grasping its young readers' attention, it has also been the source of inspiration for some famous studios like Walt Disney and movie directors like Tim Burton. In Walt Disney's adaptation (1951), the audience witnesses an Alice who is a courteous and curious child having a vast and vivid world of imagination with her neat and clean, blue-and-white dress. The characterization of Alice is very much similar to the book in terms of reflecting the time in which the book was written. Alice is a smart girl who is both educated according to the fashion of her time and different in her creativity when it comes to dreaming of a "wonderland" that is full of nonsense when compared to the tedious mindset of the society in which she lives. On the other hand, Tim Burton's *Alice in Wonderland* (2010) is a real indelible experience for the cinephiles of the 21st century. Burton remains loyal to the characters; however, he presents a young, energetic Alice with a great imagination as usual. She is more independent, bolder, stronger both in mind and soul, and more feminist. In the movie, while she is considered to be mature enough to get married according to the norms and customs of 19th-century England, she ends up as a dragon-slaying heroine in Underland. So, this paper aims to analyse how the classical *Alice in Wonderland* is interpreted in the movie adaptations by Walt Disney (1951) and Tim Burton (2010) through a feminist perspective and symbolism.

Methodology:

This study employs a qualitative, comparative textual and visual analysis method. The primary source materials that have been analyzed are Walt Disney's animated film *Alice in Wonderland* (1951, directed by Clyde Geronimi, Wilfred Jackson, and Hamilton Luske) and Tim Burton's feature film *Alice in Wonderland* (2010). The analytical approach is grounded in two primary theoretical perspectives:

Feminist Criticism: Drawing on definitions established by Sabbarwal (2000) and Friedman et al. (1987), feminism is understood as both an intellectual doctrine and an analytical lens that examines how social structures systematically disadvantage women and how female agency, equality, and resistance are represented. Historical context regarding 19th-century female subjugation and domesticity is evaluated using insights from Burki (1975), McDonnell (2018), and Rappaport (2003).

Symbolic Analysis: The narrative elements, cinematic dress, set motifs, dialogues, and character interactions are critically decoded as symbolic representations of Victorian social norms, psychological maturity, and ideological resistance.

By systematically comparing key thematic scenes, including the introduction of Alice's real-world environment, her subversion of Victorian etiquette, her encounters with authority figures, and her ultimate narrative resolution, the paper demonstrates the socio-cultural shift in how female agency is depicted on screen through these visually rich motion-picture works.

Walt Disney's Good Alice (1951)

To start with, the 1951 movie adaptation of *Alice in Wonderland* by Walt Disney can be considered one of the significant cinematic achievements that attracts not only children but also adults who love the motion picture of such a "curious" classic. In this version, the scene starts with a beautiful, panoramic garden view with lots of kinds of flowers, butterflies, bees, juicy green trees, a river, and other types of paradise-like natural elements. As the camera moves, the audience hears the voice of a governess or one of Alice's sisters who is reading a book in her very traditional, big dress while sitting under a tree. As the governess/ elder sister reads, the first thing seen about Alice is her feet dangling from a branch of the tree. While the lady is busy reading her a history book, curious but bored Alice is having fun by making a flower tiara for her cat. By mistake, her cat drops the flower tiara on the governess' head, making her notice that she is not paying attention to the book she is reading in a serious manner. On the lady's warning, Alice makes her first childish, rebellious remark and says, "I am sorry, but how can one possibly pay attention to a book with no pictures in it?" (Geronimi et al., 1951, 2:33-2:38). Alice's comment may be read as a childlike rejection of didactic, text-heavy education rather than as evidence that nineteenth-century books were inherently unappealing. Since they only contain words but no pictures in them. On the other hand, the governess confronts Alice by saying in a pompous manner, "My dear child, there are a great many good books in this world without pictures" (Geronimi et al., 1951, 2:38-2:44). She clearly epitomizes what Alice views as the dull, formulaic mindset of 19th -century society. Although Alice is a lucky girl who is able to reach the opportunity of education with a governess like her, she seems to suffer from the negativity of the era, such as being forced to read boring history books and losing her childhood cheerfulness. Alice shows a great courage to share her opinion about books and adds, "In this world maybe. But in my world, the books would be nothing but pictures" (Geronimi et al., 1951, 2:44-2:50). This sentence is a very succinct proof that Alice is not an ordinary child who was born into 19th century England; her word choice, free-spirited enthusiasm about sharing what

she thinks of the pictureless books, and even her lesson-listening position on the branch of the tree are strong signs of an independent, smart, and feminist girl. As the conversation goes on “about Alice’s world”, the lady gets critical of Alice’s comment and says, “Your world? Huh, what nonsense” (Geronimi et al., 1951, 2:50-2:54). The word “nonsense” is the total password to Alice’s world of imagination, and she uses it as the foundational concept for her imaginary wonderland. After this word, Alice completely forgets about her governess and starts a sincere conversation with her cat Dinah:

ALICE. That's it, Dinah! If I had a world of my own, everything would be nonsense. Nothing would be what is this, because everything would be what this isn't, and contrariwise, what this is, it wouldn't be, and what it wouldn't be, it would. You see?

DINAH. (meows)

ALICE. In my world, you wouldn't say "Meow". You'd say yes, Miss Alice.

DINAH. (meows)

ALICE. Oh, but you would! You'd be just like people, Dinah, and all the other animals as well. Well, in my world... (sings) Cats and rabbits would reside in fancy little houses, and be dressed in shoes and hats and trousers. In a world of my own... All the flowers would have very extra special powers, they would sit and speak to me for hours, if I'm lonely in a world of my own. There'd be new birds, lots of nice and friendly how-de-do birds, everyone would have a dozen bluebirds. Within that world of my own, I could listen to a blubbering brook and hear a song that I could understand. I keep wishing it could be that way because my world would be a Wonderland! (Geronimi et al., 1951, 2:55-4:51).

In this conversation, it is obvious to see that Alice has started building her own nonsense world with her sensible creativity. Breaking free from the tediousness of the reality of reading a boring history book, she dives into a world where all the reality is nonsense, and all the nonsense is the foundation of her wonderland.

After this wondrous conversation with Dinah, she notices something that attracts her attention: a white rabbit. This rabbit looks very different in appearance by wearing a waistcoat, carrying a watch fob, and having the characteristics of an old, alarmed man. He runs away shortly after he looks at his watch, and his short journey ends by disappearing into a hole under a tree. Alice’s reaction has an important point here. She automatically believes that he must be late for an important party, like a real person. As she follows the rabbit, she falls into a dilemma about whether to go after him or not. Again, what makes Alice an extraordinary girl born in the Victorian era is that she hesitates about going after him, as she is not invited to the party and that would

be rude to do so. What scares her is not diving into a dark, dangerous-looking hole but going to a party without an invitation, which shows that she is both a girl of manners and adventure.

Another interesting fact about Alice's language quite formal and respectful. After she falls down into the hole, she lands in a corridor in which she comes across a door. As she comes near the door to grab the doorknob, the doorknob starts talking. On turning it firmly, she realizes that she hurts him and then says, "I beg your pardon!" and in the rest of the conversation with him, she constantly addresses him as sir. Her stylistic speech and her word choice are again a sign of being brought up in a respectful way. Although Alice has the courage to go on an adventure like a sailor into the uncharted seas, instead of being a traditional girl who is taught to stay indoors like a well-behaved young lady and follow the norms of society, she does not give up on her quality as a respectful and polite girl. She seems to balance herself well.

As she continues her curious journey, she finds herself in a garden full of varied flowers. All these flowers look special and unique with their colours, petals, leaves and shapes; however, they all belong to the same group of species. As a way of introducing themselves, they start singing with pride and joy. At the end of their chorus, they become inquisitorial and begin to question Alice as to what flower she is. As they notice that she is different, they become contemptuous, violent, and rude towards Alice. They call her a wildflower or, even worse for them, a weed. Alice actually has no difference from all these flowers in terms of beauty with her bright blue eyes, blond hair, and neat dress. What makes her an outcast is her mobility and independence when compared to the flowers, which are attached to the soil with their roots. As Rappaport (2003) states that Queen Victoria "constantly reiterated her own opposition to women's rights and her firm belief that her sex belonged in its own separate, domestic sphere" (p.426); hence, the flowers may be interpreted as symbols of social conformity and restrictive gender expectations associated with Victorian domestic ideology in which Victorian women should only believe that their sole purpose of life is to stay in the limits where they are told or educated to stay in. This characteristic of young Alice makes her stand out from the Victorian dependent lifestyle.

Tim Burton's Heroic Alice (2010)

Another top-rated movie adaptation of *Alice in Wonderland* is by Tim Burton, who strips off childhood innocence from Lewis Carroll's Alice by marinating the story in his gothic style and focusing on Alice's character development through her decision-making process, which is forced both overtly and covertly by the curious characters of Wonderland. Hence, Alice is quite different from the classic book with its characterization and her firm stance. Burton's Alice is a true feminist figure with her actions, characteristic

resolve, interactions with her friends and foes, and more in this fantastic movie. Before eliciting the feminist elements in Burton's adaptation, it is quite important to define what feminism is or what it is not. Sabbarwal (2000), in her write-up, defines feminism as "the doctrine advancing the view that women are systematically disadvantaged and are advocating a collective or individual struggle for equality" (p. 268). This equality is sought in every structure and level of society, such as in the economy, media, art, education, politics, language, and so forth. On top of these, feminism is not about women having hairy legs and being aggressive, and strident women, or someone who is scared of men; for that reason, looking for protection and so forth (Friedman et al., p.3). If it is possible to say so, Burton's Alice is the incarnation of what feminism is.

As the movie starts, the audience sees a group of men talking in a dimly lit room to each other about a crucial topic: trading overseas from England. As one of the men talks of his future plans about having trading posts in countries like Bangkok and Jakarta, a little blonde girl in her nightgown shows up from the corner, looking scared because of a nightmare she has had. Being her father, the young gentleman, Charles Kingsley, leaves the room to gently take her little daughter, Alice, back to her room to sleep. And the conversation between them is an exemplary one as it shows the audience how a father can simply build up so much courage in the small heart of a little girl with his gentle words, who will remember this to grow stronger in the future:

CHARLES KINGSLEY. The nightmare again?

.....

YOUNG ALICE. I'm falling down a dark hole, then I see strange creatures...

CHARLES KINGSLEY. What kind of creatures?

YOUNG ALICE. Well, there's a dodo bird, a rabbit in a waistcoat, a smiling cat...

CHARLES KINGSLEY. I didn't know cats could smile.

YOUNG ALICE. Neither did I. Oh, and there is a blue caterpillar.

CHARLES KINGSLEY. Blue caterpillar. Hmm.

YOUNG ALICE. Do you think I've gone around the bend? (He feels her forehead as if for a fever.)

CHARLES KINGSLEY. I'm afraid so. You're mad. Bonkers. Off your head. But I'll tell you a secret...all the best people are. (She smiles) It's only a dream, Alice. Nothing can harm you there. But if you get too frightened, you can always wake up. Like this. (He pinches her. She screams and pinches him back.) (Burton, 2010, 1:49-2:53)

As aforementioned, this conversation is a valuable one in terms of how a little scared girl's mood is lifted by a biologically related and trustworthy figure like her father. The father has a constructive and supportive effect on a

girl like Alice. The scene presents fear not as a gender-based weakness but as a human response that Alice learns to confront it by herself with her father's encouragement. What is notable about Charles Kingsley's attitude towards Alice is that it is all right to get scared, and all she has to do to wake up from a nightmare with curious creatures is simply to pinch herself; in other words, to fight her fears courageously by herself without depending on others. This scene actually gives the audience a valuable clue about what kind of heroine Alice will transform into. Another point to be signified in the movie is that Mr. Kingsley can be identified as a pioneering feminist figure due to his motivating and therapeutic approach to his daughter. The nineteenth century is also sexist in terms of diagnosing women with a psychological condition called "hysteria", some symptoms of which are emotional distress, nervous anxiety, irritability, and traumatic nightmares (Schiff, 2021, para. 1). Against this oppressive Victorian backdrop, the empathetic stance of Alice's father signals a radical departure from the prevailing patriarchal norms of his era. Rather than pathologizing Alice's nightmare as a symptom of a fragile, hysterical disposition that required isolation, medical intervention, or suppression, her father offers immediate emotional safety and validation. By approaching her distress with paternal warmth and functional support rather than clinical detachment or paternalistic condescension, he defies the nineteenth-century tendency to view female emotional expression as a pathology.

Another rigid and valued Victorian-era tradition that Alice defies is marriage. In the movie, after thirteen years, the audience sees an Alice who has come of age, going to a party in a horse-drawn carriage. Feeling uneasy about the party and its tedious people, she has this conversation with her mother:

ALICE. Must we go? I doubt they'll notice if we never arrive.

HELEN KINGSLEY. They will notice. (She re-ties her waist sash, feeling for her corset.) Where's your corset? (She pulls back her dress to see bare legs.) And no stockings!

ALICE. I'm against them.

HELEN KINGSLEY. But you're not properly dressed.

ALICE. Who's to say what is proper? What if it was agreed that "proper" was wearing a codfish on your head? Would you wear it?

HELEN KINGSLEY. Alice.

ALICE. To me a corset is like a codfish.

HELEN KINGSLEY. Please. Not today. (Frustrated, Alice looks out the window and mutters.)

ALICE. Father would have laughed. (Burton, 2010, 3:07-3:45)

This conversation is an actual war between two people with different mindsets, ages, and concerns about life, although they belong to the same

gender and time. Alice's mother knows that the party they are going to is Alice's engagement party. According to the norms of that time, she, as a mother and a widower desires the best for her daughter, which is a suitable marriage. McDonnell (2018) also mentions the importance of marriage in that period and states that "Marriage was at the centre of everyday lives for the Victorians and its influence extended to all corners of life and was the basis on which Victorian society was established" (p. 2). However, this institution is not something that Alice wishes to be part of. She simply starts defying it even without being aware of her engagement party by rejecting wearing a corset and stockings in which she feels restricted, and she takes them as improper for herself. During the carriage ride, Alice directly challenges the bodily and sartorial constraints imposed on Victorian women. She even philosophically questions what "proper" is and compares wearing a corset to wearing a codfish. She views the corset, which is a physical instrument of female constriction, as absurd, questioning the arbitrary nature of societal dress codes. She is obviously against the standards that are considered normal and appropriate for women, unlike her. She speaks of her father at the end of her conversation with her mother since Alice knows that she and her father share a similar mentality with each other, and he would laugh at all this nonsense.

Another interesting detail about Alice's perspective on gender roles is the conversation between her and Hamish, who is arranged to be her husband. Considering to be understood by him, she feels like sharing what she dreams about and as they are dancing quadrille at the party, she smiles:

HAMISH. Do I amuse you?

ALICE. No. I had a sudden vision of all the ladies in trousers and the men wearing dresses. (He doesn't even smile.)

HAMISH. I think you'll do best to keep your visions to yourself. When in doubt, remain silent. (Burton, 2010, 6:01-6:14)

This conversation between Alice and Hamish clearly manifests that Hamish has no respect when a woman shares her extraordinary thoughts, as Alice does. It seems that it is nonsense or even unacceptable to imagine that men and women are exchanging their outfits in an unconventional way. Although he does not share his opinions on this topic in a long speech, he simply tells Alice to remain quiet if she is not able to stop dreaming about such impossible situations. Hamish's attitude is an evident example of how women are disregarded by men due to having such a vivid imagination, which is thought to be lacking in women. Unfortunately, women are thought not only to lack independent thinking, but also in other areas as well. Burki also explains how science and the church defined women in the nineteenth century. According to the church, women can only develop spiritually under the strict guidance of men who are morally superior, and for science, women are

considered to be weak both intellectually and emotionally (1975, p.197). Although these assumptions were prevalent in the nineteenth century, they were not correct at all when considering all the burdens and responsibilities the women had to undertake as wives, mothers, and workers. Intimidated at the party and excited about seeing the mysterious white rabbit in a waistcoat, Alice runs away to the forest after it and falls into a hole under a tree. Once Alice is out of the hole, she is welcomed by the extraordinary characters of Wonderland. But there is one problem: they are not sure whether she is the “real” Alice. To solve this issue, they go to Absolem, the old, wise caterpillar, to seek advice. He first asks Alice who she is, and Alice simply tells him her name. Being in doubt, he tells them to bring the Oraculum, which is an ancient timeline parchment depicting the major events of each day in underland. In the parchment, there is a special day called Frabjous Day on which Alice is expected to slay the monster Jabberwocky. On hearing this, Alice feels frightened and runs away. Unfortunately, at the same time, everyone is ambushed by the soldiers and the monsters of the Red Queen. As she walks in the forest, she comes across the tea party of the Mad Hatter, the March Hare and the Dormouse. They appear as lunatics as before at the table. While having their tea, the Knave of Hearts comes looking for Alice. After he leaves, the Mad Hatter sets out to take Alice to the White Queen to keep her safe and sound. On the road, the Mad Hatter starts talking the language of the underland:

ALICE. Sorry? What was that?

MAD HATTER. Sorry? What was what? The Jabberwock with eyes of flame. The jaws that bite. The claws that catch... He took his vorpal sword in hand. The vorpal blade went snicker-snack. He left it dead, and with its head...It's all about you, you know...

ALICE. I'm not slaying anything. I don't slay. So, put it out of your mind.

MAD HATTER Mmm...mind.(He drops her to the ground and walks on. She follows.)

ALICE. Wait, you can't leave me here!

MAD HATTER. You don't slay... Do you have any idea what the Red Queen has done? (mimicking her) You “don't slay”.

ALICE. I couldn't if I wanted to.

MAD HATTER. (accusing) You're not the same as you were before. You were much more...much more muchier...You've lost your muchness.

ALICE. My muchness? (He pokes her in the stomach with his finger.)

MAD HATTER. In there. Something's missing. (Burton, 2010, 37:05-38:26)

This conversation between Alice and the Mad Hatter highlights something crucial about Alice: her identity. With this adaptation of *Alice in*

Wonderland, Tim Burton brings out a noteworthy topic with this young Alice. He stresses the importance of Alice's search for her identity in both worlds: England of the nineteenth century and Wonderland. Ismajloska (2014), in her article, also shares her opinion about Burton's aim in the movie, "Tim Burton's movie *Alice in Wonderland* deals with the multiple concepts of one persona by creating, from an already grown-up Alice, a character conscious of herself and of the consequences of becoming mature" (p. 312). So, is she going to be a damsel-in-distress and yield to the derogatory norms of the nineteenth century set for women without asking them for their actual consent, or will she gain her "muchness" back and win her status as a knight in shining armour? With her life at stake, Alice uses her own willpower and her freedom to choose what to do for Wonderland. By choosing to slay the Jabberwocky, she both leads Wonderland to its salvation and gains her identity and her strength to make the right decision for herself.

Although Alice wins the battle in the realm of Wonderland, this time, she has another battle to win in the realm of reality. Once she steps out of the rabbit hole, she goes right back to the garden where her so-called engagement party is. She stands with her hair loose, her clothes ragged and messy, as if she has come from a "fight". First, she confronts Hamish and tells him that she cannot marry him because he is not the right man. Next, she gently holds her sister Margaret's hand and tells her how much she loves her and that she will decide what to do with her own life. And then, she turns to Lowell, who is Margaret's husband and not a faithful man. She reminds him how lucky he is to have her sister for his wife and warns him sternly to be nice to her, as Alice will be watching him closely. Finally, she talks to her own mother Mrs. Kingsley and then to Hamish's mother, Lady Ascot, who mocked her for being into rabbits. Alice tells her she is very fond of white rabbits in a sarcastic way. As for her mother, she consoles her by promising to find something "useful" to do with her life, which is not a marriage at all. She, at the end, turns to Lord Ascot, who knows that Alice will not be his daughter-in-law but the intern, and she will take over her father's business and his dream about having trade posts in the Far East. However, Alice aims for a better and farther country: China. All these people are the symbols of the century in which Alice lives. They all stand for the limits, restrictions, responsibilities, dreams, obligations, and norms of the society. By standing against them, Alice shows how much she has changed both as a woman and as an independent individual, which is the sole aim and representation of feminism. Consequently, it can be concluded that Burton's Alice has an artistic, humanistic, and didactic effect on the audience.

Conclusion

In conclusion, cinematic adaptations of Lewis Carroll's *Alice's Adventures in Wonderland* serve as vital cultural barometers, tracing the evolving socio-cultural landscape of female agency from the mid-twentieth century to the contemporary era. Through a comparative feminist and symbolic analysis, this study demonstrates how Walt Disney (1951) and Tim Burton (2010) recontextualize Carroll's heroine to reflect distinct gender paradigms. Disney's Alice subverts Victorian societal rigidity through quiet intellectual resistance, curiosity, and verbal autonomy; however, her subversion into the society remains contained within domestic and childhood boundaries. Conversely, Burton's 2010 adaptation transforms Alice into an overt feminist protagonist who reclaims her "muchness" by rejecting institutionalized marriage, discarding restrictive sartorial constraints like the corset, and diving into a heroic role of a dragon-slaying knight. Through rich visual symbolism that ranges from the oppressive domestic gardens of Victorian England to the liberatory battlefields of Underland, Burton elevates Alice from a conformist female member of the Victorian era to an autonomous, gallant woman who actively shapes her own destiny, culminating in her entry into global mercantilism and independence. Ultimately, both film works validate the enduring malleability of Carroll's text, illustrating how literary adaptation functions not merely as aesthetic repetition but as a dynamic space where shifting notions of female autonomy, identity, and social empowerment are continually renegotiated.

Conflict of Interest: The author reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The author did not obtain any funding for this research.

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The Impact of English and German on the Albanian Language Usage among University Students

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[Doi:10.19044/esj.2026.v22n23p25](https://doi.org/10.19044/esj.2026.v22n23p25)

Submitted: 16 June 2026

Accepted: 14 August 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Emini-Ismaili, A., & Kamberi, L. (2026). *The Impact of English and German on the Albanian Language Usage among University Students*. European Scientific Journal, ESJ, 22 (23), 25. <https://doi.org/10.19044/esj.2026.v22n23p25>

Abstract

This study examines the influence of English and German on the everyday use of Albanian among students at the University of Tetovo. The research focuses on the frequency and contexts in which students use English and German lexical items while communicating in Albanian, as well as their attitudes toward this linguistic influence. The study was exploratory and was based on a convenience sample of 35 students enrolled in the English Language and Literature and German Language and Literature programs. Data were collected through a 13-item questionnaire containing single-choice, multiple-response, and open-ended questions. Frequencies and percentages were used to analyze the closed-ended responses, while the open-ended responses were reviewed descriptively.

The findings show that English has a substantially stronger influence than German. English was selected as the most frequently used foreign language by 65.7% of the respondents, and 82.9% reported using English words in Albanian at least occasionally. In contrast, 60.0% reported using German words rarely or never. Foreign lexical items were used primarily in communication with friends and on social networks. Students' attitudes were mixed: some regarded foreign influence as a natural part of linguistic development, while others perceived it as a potential risk to standard Albanian. The findings highlight the growing role of English in informal and digital communication while demonstrating the continuing importance of linguistic awareness and standard Albanian in academic contexts.

Keywords: Albanian language, English influence, German influence, language contact, loanwords, university students

Introduction

The influence of dominant international languages on smaller national languages is particularly visible among younger speakers. University students are regularly exposed to foreign languages through education, digital media, technology, popular culture, and transnational mobility. In Albanian-speaking settings, English has become highly visible in academic and digital communication, while German is also relevant because of migration, employment, and long-standing connections with German-speaking countries.

English functions as a global lingua franca in science, technology, business, education, and online communication (Crystal, 2003). Students encounter English vocabulary through academic sources, software, social media platforms, entertainment, and international cultural content. German is less globally dominant, but it has a distinct social presence in Albanian-speaking communities because many families have personal, educational, or professional links with Germany, Austria, and Switzerland.

Language contact can result in lexical borrowing, code-switching, and different forms of linguistic adaptation (Matras, 2009; Weinreich, 1953; Winford, 2003). In this paper, the term loanword refers to an individual lexical item taken from English or German and used in Albanian communication. Code-switching refers more broadly to alternation between languages within an interaction. Recent research also emphasizes that the boundary between lexical borrowing and code-switching is not always straightforward, particularly when individual foreign-language elements occur within otherwise monolingual discourse (Backus, 2020; Doğruöz et al., 2021). Because the questionnaire focused primarily on the reported use of individual words, the empirical analysis concerns loanword use rather than the grammatical structure of code-switching.

The study investigates how students from the English and German Language and Literature programs at the University of Tetovo report using English and German words in Albanian. It also examines the contexts in which this use occurs and the way students evaluate foreign-language influence. The study is exploratory and is intended to provide a current picture of language practices within a small multilingual university sample.

The contribution of the present study lies in the direct comparison of English and German influence within the same Albanian-speaking university sample. Rather than treating foreign-language influence as a single phenomenon, the study compares two languages that occupy different positions in the participants' linguistic environment: English as a globally

dominant language with a strong presence in digital communication, and German as a language associated with more specific educational, professional, and migration-related networks. Examining both languages through the same questionnaire makes it possible to identify similarities and differences in their reported influence on contemporary Albanian language use.

Theoretical background

Language contact has long been treated as a central source of linguistic change. Weinreich (1953) described contact-induced influence as the transfer of elements between linguistic systems in bilingual use. Later research emphasized that contact outcomes depend on social intensity, speaker networks, prestige, mobility, and the communicative functions assigned to each language (Matras, 2009; Thomason & Kaufman, 1988; Trudgill, 1986; Winford, 2003). Labov (1994) likewise demonstrated that language change must be interpreted in relation to both linguistic structure and the social conditions of use.

Lexical borrowing is among the most visible outcomes of contact. Haugen (1950) defined borrowing as the adoption and reproduction of linguistic elements from another language. Borrowed items may initially remain recognizably foreign, but repeated use can lead to phonological, morphological, and semantic integration. Their status is therefore not fixed: an item may function as an occasional foreign insertion for one speaker and as an established loanword for another.

English currently has exceptional reach because of its role in international communication and digital culture (Crystal, 2003). Its influence is especially strong in domains in which new terminology circulates rapidly, including computing, social media, entertainment, and higher education. Research on contemporary Albanian has similarly noted that international vocabulary can both enrich expression and create concern about unnecessary replacement of available Albanian forms (Vasili, 2016).

German influence follows a different pattern. It is connected less to global digital dominance than to regional mobility, migration, family networks, study, and employment. Such domain specialization is consistent with sociolinguistic accounts showing that multilingual speakers select linguistic resources according to context, identity, audience, and communicative purpose (Myers-Scotton, 2006; Wardhaugh & Fuller, 2015).

Research questions

1. To what extent do English and German influence the everyday Albanian communication of the participating university students?
2. In which contexts are foreign lexical items most often used?

3. How do students evaluate the influence of English, German, and social media on Albanian?

Methods

The study aims to analyze the extent to which English and German influence the everyday communication of Albanian university students and to identify the contexts and situations in which they are more likely to use English or German terms instead of their Albanian equivalents. Using convenience sampling, the study included 24 students from the English Department and 11 students from the German Department aged between 18 and 25 who were enrolled in the Undergraduate program at the University of Tetovo in the year 2025. The aim was to provide an exploratory description of language use among university students who are regularly exposed to foreign languages in academic and social contexts. Because the sample was small, non-probabilistic, and drawn from a single university, the findings are exploratory and are not intended to be generalized to the wider population of Albanian-speaking university students.

This study is based on a mixed-methods approach that combines both quantitative and qualitative perspectives (Fraenkel & Wallen, 2003). A structured questionnaire was used as the primary instrument for data collection (Dörnyei, 2007). The 13-item questionnaire combined single-choice, multiple-response, and open-ended questions. The first section collected basic participant information and identified the foreign language used most frequently. The second section measured how often students used English and German words while communicating in Albanian. The third section examined the contexts of use, including communication with friends, social networks, study, work, and other situations. The final section explored students' perceptions of English and German loanwords, the influence of social media, and the need to protect standard Albanian in academic settings.

The questionnaire was developed by the authors specifically for the exploratory purposes of this study and was not adapted from an existing standardized instrument. The items were formulated in relation to the research questions and the theoretical framework on language contact, lexical borrowing, and multilingual language use. Both authors reviewed the questionnaire before its administration to ensure that the questions were clear and relevant to the aims of the study. However, the instrument was not formally piloted or independently reviewed by external experts for content validity.

Two open-ended items invited students to provide examples of English and German lexical items that they used while communicating in Albanian. The English-language item received 32 responses, while the German-language item received 28 responses. The responses were reviewed manually, and

capitalization and obvious spelling variants were normalized for descriptive counting. For example, *OK*, *Okay*, and *Okey* were treated as variants of the same item, as were *Shpajz* and *Shpajs*. Because some participants provided complete expressions rather than individual loanwords, the examples are presented as participant-reported lexical items and expressions rather than as etymologically verified Albanian loanwords.

Responses were exported from Google Forms and analyzed at the aggregate level. Frequencies and percentages were calculated for single-choice items. For the multiple-response context item, both the number of selections and the percentage of the full sample were reported; because respondents could choose more than one context, percentages do not sum to 100%. Item-level response totals are stated whenever they differ from the full sample of 35.

Open-ended responses were reviewed manually using a basic thematic procedure informed by qualitative content analysis (Silverman, 2005). Responses concerning standard Albanian were grouped around recurring positions such as protection of academic language, acceptance of natural language development, and concern about excessive foreign influence. No inferential statistical tests were applied because the study was exploratory and the sample was small. Results were analyzed in aggregate, and no identifying information is reported.

Results

Sample composition and most frequently used foreign language

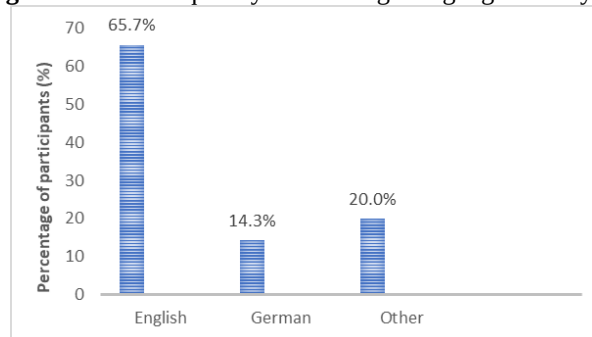
All 35 participants answered the question concerning their field of study. Twenty-four participants were enrolled in the English program and 11 in the German program.

Table 1: Participant composition by study program

Study program	n	%
English Language and Literature	24	68.6
German Language and Literature	11	31.4
Total	35	100.0

Regarding everyday foreign-language use, English was clearly dominant. Twenty-three students (65.7%) selected English, five (14.3%) selected German, and seven (20.0%) selected another language or a combination of languages, as illustrated in Figure 1.

Figure 1: Most frequently used foreign language in daily life



Note. N = 35. The “other” category included Turkish, Macedonian, and combinations of more than one foreign language.

Frequency of English loanword use

English lexical items were common in Albanian communication. Eighteen students (51.5%) reported using English words frequently or very frequently, and another 11 students (31.4%) reported occasional use. Overall, 29 of the 35 respondents (82.9%) used English words at least occasionally. Only six students (17.1%) selected rarely or never.

Table 2: Frequency of English words used while communicating in Albanian

Frequency	n	%
Very frequently	8	22.9
Frequently	10	28.6
Occasionally	11	31.4
Rarely	4	11.4
Never	2	5.7
Total	35	100.0

Frequency of German loanword use

German lexical items were substantially less frequent. Thirteen respondents (37.1%) reported never using German words and eight (22.9%) reported rare use. Thus, 21 students (60.0%) used German words rarely or never. Eleven respondents (31.4%) selected occasional or frequent use, while two (5.7%) selected very frequent use. One participant entered a non-standard response rather than selecting a frequency category.

Table 3: Frequency of German words used while communicating in Albanian

Frequency	n	%
Very frequently	2	5.7
Frequently	5	14.3
Occasionally	6	17.1
Rarely	8	22.9
Never	13	37.1
Other/non-standard response	1	2.9
Total	35	100.0

Participant-reported lexical items and expressions

The two open-ended items provided concrete examples of the English- and German-related linguistic forms used by the participants. After capitalization and obvious spelling variants had been normalized, okay was the most frequently reported English item, with ten mentions. Like, email, yes, and password were each mentioned four times. Other recurring items included hello, laptop, chat, bye, and computer/kompjuter, each of which was mentioned three times. The German responses were less varied and less frequent. Bitte, nein, and danke were each mentioned four times, while Shpajz/Shpajs was mentioned three times. Frizer, egal, ja, and Autobahn were each mentioned twice. Some participants also provided longer expressions, including no way, see you, and I love you in English, and oh mein Gott, keine Ahnung, and wie geht es Ihnen in German.

This indicates that some respondents interpreted the question broadly and included examples of code-switching alongside individual lexical borrowings.

Table 4: Most frequently reported English- and German-related items

Language	Reported item	Mentions (n)
English	<i>okay</i>	10
English	<i>like</i>	4
English	<i>email</i>	4
English	<i>yes</i>	4
English	<i>password</i>	4
English	<i>hello</i>	3
English	<i>laptop</i>	3
English	<i>chat</i>	3
English	<i>bye</i>	3
English	<i>computer/kompjuter</i>	3
German	<i>bitte</i>	4
German	<i>nein</i>	4
German	<i>danke</i>	4
German	<i>Shpajz/Shpajs</i>	3
German	<i>Frizer</i>	2
German	<i>egal</i>	2
German	<i>ja</i>	2
German	<i>Autobahn</i>	2

Note. Counts represent mentions in the open-ended responses. Capitalization and obvious spelling variants were combined. The classification reflects the participants' own responses and does not imply that every item is an established or direct loanword in Albanian.

Contexts of foreign lexical use

The context item allowed more than one answer. Foreign words were used mainly in informal and digitally mediated communication. Thirty respondents selected communication with friends and 29 selected social

networks. Academic and professional contexts were less prominent: nine selected study and eight selected work. Seven respondents selected other contexts.

Table 5: Contexts in which foreign words were used

Context	Selections (n)	% of participants
Communication with friends	30	85.7
Social networks	29	82.9
Study	9	25.7
Work	8	22.9
Other contexts	7	20.0

Note. Multiple responses were permitted; therefore, percentages exceed 100% when combined.

Attitudes toward English and German influence

Thirty-three students answered each attitude item. English loanwords were most often perceived as a risk to Albanian (42.4%) or as a natural part of linguistic development (36.4%). Five respondents (15.2%) described them mainly as a trend, and two (6.1%) viewed them as enrichment. Attitudes toward German were slightly more evenly distributed: 36.4% regarded German influence as a natural part of linguistic development, 33.3% as a risk, 18.2% as a trend, and 9.1% as enrichment. One respondent stated that German words were not used at all.

Table 6: Perceptions of English and German loanwords

Perception	English n (%)	German n (%)
Enrichment of the language	2 (6.1)	3 (9.1)
Risk to Albanian	14 (42.4)	11 (33.3)
Natural part of linguistic development	12 (36.4)	12 (36.4)
Trend	5 (15.2)	6 (18.2)
Not used at all	0 (0.0)	1 (3.0)
Valid responses	33 (100.0)	33 (100.0)

Perceived influence of social media and views on standard Albanian

Thirty-four participants answered the item on social media. Twenty-nine (85.3%) believed that social media had influenced changes in the Albanian spoken or written by students “very much,” while five (14.7%) selected “somewhat.” No respondent selected “little” or “not at all.” This result supports a strong association between foreign lexical influence and digital communication. Given the overall dominance of English in the responses, English likely accounts for a substantial part of this influence, although the context item did not distinguish between languages.

The final open-ended item received 32 responses. The visible response summary indicates broad support for stronger protection of standard Albanian in academic settings, although several answers adopted a qualified position.

Recurring arguments emphasized the formal character of academic communication, the responsibility of lecturers and students to model standard usage, and concern that excessive foreign vocabulary may weaken clarity. Other responses accepted borrowing when no precise Albanian equivalent is readily available. Because the available export displayed abbreviated response labels rather than the complete text, exact thematic frequencies were not calculated.

Discussion

The findings show a clear asymmetry between English and German. English was selected as the most frequently used foreign language by nearly two thirds of the sample, and more than four fifths of respondents reported using English words in Albanian at least occasionally. By contrast, 60.0% used German words rarely or never. These results answer the first research question by showing that English has a broader and more regular influence on the participating students' everyday Albanian.

The lexical examples further illustrate the difference between the influence of English and German. English responses included many items connected with everyday interaction and digital communication, such as *okay*, *like*, *email*, *laptop*, *chat*, *password*, *online*, and *download*. German responses were concentrated around common interactional forms such as *bitte*, *danke*, *nein*, and *ja*, together with participant-reported adapted forms such as *Shpajz/Shpajs* and *Frizer*. The presence of multiword expressions in both sets of responses also shows that participants did not always distinguish between lexical borrowing and code-switching.

These multiword expressions are therefore better interpreted as instances of code-switching or foreign-language insertion rather than as established loanwords in the strict linguistic sense. Consequently, the examples reported by participants should be understood as evidence of broader foreign-language influence on their communication, rather than exclusively as evidence of lexical borrowing. This distinction is important because the questionnaire captured participants' own perceptions of their language use rather than an etymological or structural classification of every reported form.

The context data help explain this difference. Communication with friends and social networks were by far the most frequently selected domains. English has a strong presence in precisely these environments because social media interfaces, entertainment, software, and transnational youth culture circulate large amounts of English vocabulary (Crystal, 2003). The result that 85.3% of respondents perceived a very strong social-media influence further supports this interpretation. The strong contrast between informal/digital contexts and academic or professional contexts suggests that foreign lexical influence is register-sensitive rather than equally distributed across all areas of

communication. Students appear to make greater use of foreign linguistic resources in less formal settings, while more formal domains may encourage greater use of standard Albanian.

German influence appears more limited and specialized. Its lower overall frequency does not mean that it is sociolinguistically irrelevant. German influence may be associated with narrower educational, professional, migration-related, and family networks connected to German-speaking countries. However, these factors were not measured directly in the questionnaire. This pattern corresponds to theories of domain-specific multilingual practice, according to which speakers draw on different languages according to audience, setting, identity, and communicative purpose (Myers-Scotton, 2006; Wardhaugh & Fuller, 2015). The comparison therefore points to two different patterns of language contact within the same student population: a broad and frequent English influence and a more restricted German influence. This contrast suggests that foreign-language influence on Albanian cannot be treated as a uniform process, but depends on the social and communicative role of each contact language.

Students' attitudes reveal an important tension. For both English and German, substantial groups described foreign influence as a natural part of linguistic development, but many also considered it a risk to Albanian. These positions are not mutually exclusive. Borrowing can provide efficient labels for new technologies and international concepts, while excessive replacement of clear Albanian equivalents may create concern about linguistic identity and standard usage. Similar debates accompany language contact in many smaller linguistic communities (Matras, 2009; Vasili, 2016). The coexistence of these two positions is itself significant: students may recognize borrowing as an ordinary consequence of multilingual communication while simultaneously expressing concern about its excessive use in formal Albanian. Their responses therefore reflect linguistic awareness rather than a simple acceptance or rejection of foreign influence.

The findings should not be interpreted as evidence that students are abandoning Albanian. The reported use of foreign words is better understood as a functional response to multilingual environments. Nevertheless, the strong role of informal digital communication suggests that higher education has an important role in developing students' awareness of register. Students can be encouraged to distinguish between acceptable international terminology, informal code-switching, and the requirements of clear standard Albanian in academic writing.

Conclusions

This study examined the self-reported influence of English and German on Albanian language use among 35 students at the University of

Tetovo. English had the stronger and more widespread influence. It was the most frequently used foreign language for 65.7% of respondents, and 82.9% reported using English words in Albanian at least occasionally. German use was more limited, with 60.0% reporting rare or no use.

Foreign lexical items were used most often in communication with friends and on social networks. The findings therefore connect English influence primarily with informal and digital communication. German showed a more limited overall presence and may be associated with narrower educational, professional, and migration-related networks. The central comparative finding is therefore that English and German do not influence the students' Albanian in the same way or to the same extent.

Students did not evaluate foreign influence uniformly. Some viewed borrowing as a natural feature of language development, while others considered it a risk to Albanian. The findings suggest that language contact should be addressed through critical language awareness rather than through simple rejection or unrestricted acceptance. University teaching can support this aim by promoting standard Albanian in formal contexts while also helping students evaluate when international terminology is necessary, established, or avoidable.

Limitations and future research

The study has several limitations. The sample was small, was selected through convenience sampling, and included only two language programs at one university. The data were self-reported and therefore describe perceived rather than directly observed language behavior. In addition, the questionnaire was developed specifically for this exploratory study and was not subjected to formal pilot testing or independent content validation, which should be considered when interpreting the findings. The open-ended questions elicited both individual words and longer expressions, and some items identified by participants as borrowings may instead represent code-switching or indirect borrowing through other contact languages. The examples were based on participants' own classifications and were not subjected to a separate etymological analysis. Future research should retain the full anonymized response file, use a larger and more diverse sample, compare departments outside language studies, and combine questionnaires with recorded interaction or systematically conducted interviews.

Acknowledgments

The authors thank the students of the English Language and Literature and German Language and Literature programs at the University of Tetovo for participating in the study.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Declaration for Human Participants

This study involved human participants through an anonymous questionnaire administered to university students via Google Forms. Formal approval from an Institutional Review Board or Ethics Committee was not obtained prior to data collection. The authors acknowledge this limitation and confirm that the study was conducted in accordance with ethical principles applicable to research involving human participants.

Participation in the study was voluntary. Before the questionnaire was administered, the participants were informed orally during class about the purpose of the research and the intended scientific use of the collected data. Completion of the questionnaire was considered as consent to participate. No names, email addresses, or other identifying information were requested, and the responses were collected anonymously.

The confidentiality of participants was maintained throughout the research process. No personal information that could directly identify individual participants was collected or is presented in the manuscript. The data were used exclusively for academic and scientific purposes.

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Speaking Paucity Among Learners of English in Sierra Leone

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[Doi:10.19044/esj.2026.v22n23p38](https://doi.org/10.19044/esj.2026.v22n23p38)

Submitted: 30 March 2026

Accepted: 28 July 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Stevens, J.P., & Sheriff, A.B. (2026). *Speaking Paucity Among Learners of English in Sierra Leone*. European Scientific Journal, ESJ, 22 (23), 38.

<https://doi.org/10.19044/esj.2026.v22n23p38>

Abstract

The study examined sociocultural and linguistic strategies for cultivating English as a second language (ESL) oral proficiency among learners of English in Sierra Leone. It aimed to determine the relationship between learners' bi/multilingual backgrounds and their English adeptness. It also examines the influence of societal and cultural temperateness on language learning. A systematic random sampling technique was employed within a mixed-methods design, and data were collected from 1000 learners using questionnaires, discussions and interviews, with results analysed using SPSS and presented. Findings showed that over 85% of the learners made noticeable pronunciation errors during speaking activities. The study also revealed that traditional teaching methods, such as grammar translation and rote learning, contributed significantly to the decline in fluency and overall language proficiency. Furthermore, learners in urban areas performed better than those in rural settings. Many learners demonstrated weaknesses in spelling, pronunciation, and subject-verb agreement in both spoken and written communication. These outcomes were linked to teacher-centred, traditional teaching methods and exam-orientated approaches that relied heavily on textbooks. The study recommended increased learner participation through interactive strategies such as open discussions, debates, peer learning and public speaking. From the perspective of authenticity theory, the findings

indicated that oral fluency development depended not only on linguistic knowledge but also on meaningful, real-life language use with a focus on society and culture. Learners who engaged in authentic speaking activities showed greater confidence, improved enunciation and enhanced ESL use. In contrast, fluency remained limited where instruction focused mainly on rote memorisation and examination drills, highlighting a gap between academic achievement and communicative competence.

Keywords: English-Speaking Poverty, Oral Aptitude, Knack, Public Discourse and Adeptness

Introduction

Effective communication begins with developing both listening and speaking skills. When we communicate, our ability to understand others and express ourselves clearly determines how successfully we connect with those around us and get our message across. Teaching learners how to speak English fluently and successfully is not the main focus in many nations like Sierra Leone, where the language is seen as foreign (Stevens, Challay and Thulla, 2025; Peltonen, 2024; Al-Khresheh, 2024; Cahyani et al., 2024).

Stevens, Challay and Thulla. (2023) stated that although English is required in the Sierra Leone educational system as a core subject and language of tuition, verbal discourse fluency is not the main emphasis of the course, despite the fact that it is taught. The majority of learners just take English classes because it is mandated by the curriculum; they are not aware of the benefits of learning the language. Attempts to improve oral English ability in L2 English learners seem to be having little impact. Evidently, unidentified impact flaws, disparate compatibilities and instructional approaches could be some causes of the teaching/learning objectives not being reached. However, thinking about the issue and generating speculative assumptions may never lead to the intended outcomes. The objectives of the current study are to carry out a thoughtful investigation into the alarming speaking poverty situation in the country. By including the interplay of sociocultural and linguistic components, it seeks to improve second language learners' oral English competence in Sierra Leone.

ESL instruction in schools is a growingly significant area of applied linguistics and has long been a contentious issue, particularly in European and Asian nations (Stevens and Sheriff 2025a; Sheriff, Stevens, Challay and Thullay 2025; Crompton et al. 2024; and Christian et al. 2020). Invariably, the aim of the study is to ascertain the best sociocultural and linguistic practices that foster learners' oral knack in the English language. The study objectives are to determine the relationship between learners' bi/multilingual

backgrounds and their English adeptness and to also examine the influence of societal and cultural warmth on language learning.

Enhancing conversational skills in English as a foreign or second language is crucial in many nations, including Sierra Leone. In oral communication, a proficient English speaker must carefully integrate sociolinguistic elements. By helping speakers overcome societal, cultural, and self-anxieties to process and produce speech proficiently, these elements promote the learning processes. In order to do this, it is evident that over the past ten years, there has been a significant rise in the desire of people worldwide to acquire English as a second or foreign language in order to compete in the global market and computer industry/era. For example, Sierra Leone's population of English learners has increased significantly during the past ten years (Stevens and Sheriff 2025b).

Views on fluency

Fluency is a complex and multifaceted phenomenon that can be examined across both receptive and productive language skills: namely reading, listening, writing, and speaking. This study, however, focuses specifically on fluency in speaking, that is, oral fluency in second language (L2) use, encompassing both second and foreign language acquisition. Within the field of Second Language Acquisition (SLA), oral fluency has been defined from a wide range of perspectives, each emphasizing different dimensions. Given space limitations, only the most prominent definitions are considered here. A key distinction is often made between a broad and a narrow interpretation of fluency (Kaushika, 2024; Peltonen, 2024; Hasumi & Chiu, 2024; and Fatima et al., 2020). In its broadest sense, fluency is equated with overall oral proficiency (Duan, 2024; Akpabio, 2024; Huda & Rahmawati, 2024; Kazu & Kuvvetli, 2024; and Jacob, 2022), referring to a speaker's general mastery of the language, which is a view commonly held by both learners and non-specialists (Robayo, 2025). In contrast, the narrower perspective treats fluency as one component of oral proficiency, alongside complexity and accuracy, all of which contribute to successful L2 acquisition (Lustenberger, 2024; Jacob, 2022; Kabbellow, Omulando, & Barasa, 2022). From this viewpoint, fluency relates primarily to learners' control over temporal and acoustic aspects of language use (Xing & Saeed, 2025; Zeng & Fisher, 2024; and Luo & Han, 2023) and is often associated with features such as speed and smoothness of speech. For instance, Ferunzi (2021) defines fluency as the "flow, continuity, automaticity, or smoothness of speech". The narrower interpretation, on the other hand, is more commonly used in SLA research and applied linguistics (Zhao, Noordin, Ahmad, & Liu, 2024; and Duke, Ward, & Pearson, 2021).

Although the broad interpretation is based on intuitive understanding, Hudson, Koh, Moore, & Binks-Cantrell (2020) have described it as relatively theoretical. Yanwar, Sitthiworachart, & Joy (2022), for instance, approached fluency from the perspective of the listener, defining it as the impression that speech planning and production processes are functioning smoothly and efficiently. Al-Khresheh (2024), and Crompton et al. (2024) stress the speaker's performance, characterising fluency as the capacity to speak for extended periods of time with few pauses; and Xing and Saeed (2025) define fluency as the rapid, smooth, accurate, and efficient expression of thought under real-time processing constraints. Although these definitions share a focus on spoken performance, they differ in emphasis. Robayo (2025) highlighted observable features of speech, whereas Fatima et al. (2024) incorporated underlying cognitive processes involved in speech production. This divergence is also evident in other interpretations of fluency within the literature (e.g., Zeng & Fisher, 2024 and Zhao, Noordin, Ahmad, & Liu, 2024). Robayo (2025) offered a thorough multi-componential model of fluency with three interconnected types: cognitive fluency, utterance fluency and perceived fluency to accommodate these differing viewpoints.

The mental processes that underlie speech production, such as conceptualisation, lexical retrieval, phonological encoding and articulation, are referred to as 'cognitive fluency'. Faster access to linguistic resources results in more speech that is fluent, and it is closely related to automaticity and efficiency in language processing (Stevens and Sheriff, 2025). Conversely, utterance fluency refers to the observable aspects of speech. It encompasses elements like speech pace, pauses, and repair techniques and represents the quantifiable output that comes from cognitive processes. Three primary dimensions can be used to examine utterance fluency, according to Huda & Rahmawati (2024) and Tavakoli (2019): speed (e.g., speech rate and run length), breakdown (e.g., frequency and duration of pauses), and repair (e.g., repeats, reformulations, and false starts). For empirical studies on fluency, this paradigm has been exclusively helpful (Kazu & Kuvvetli, 2024). Perceived fluency, the third component, relates to how listeners interpret a speaker's fluency based on their speech performance. It is inherently subjective and often associated with intelligibility and the overall ease or pleasantness of understanding speech (Cahyani, Fadhilawati, & Aini, 2024; Lee et al., 2019).

Speakers naturally aim to maintain listener engagement, and listeners, in turn, appear to have an intuitive sense of what constitutes fluent speech (Freed, 2000). Consequently, speech that is easy to follow is typically judged as more fluent. Although Segalowitz's model provides a comprehensive and systematic framework, fluency is not limited to cognitive and linguistic factors alone. Social, attitudinal and motivational influences may also play a

significant role in shaping fluency (Feruzi, 2021). In summary, fluency remains a complex and multifaceted construct within SLA and applied linguistics. The diversity of definitions reflects the lack of a unified consensus among scholars while simultaneously underscoring the multidimensional nature of fluency (Robayo, 2025; Yihao, 2024; Segalowitz, 2010; and Tavakoli, 2019). As Akpabio (2024) argued, it is not possible to reduce fluency to a single, unified concept. Instead, it is more appropriate to consider multiple dimensions of fluency. From a pedagogical standpoint, this complexity presents challenges, making the development of fluency in L2 classrooms a demanding task.

Fluency in Research

From a language pedagogy perspective, research on fluency and overall oral production has often focused on how different types of tasks influence performance. Evidence consistently shows that several task types are particularly effective in promoting L2 fluency.

Firstly, formulaic sequence tasks have been widely studied. Research (e.g., Akpabio, 2024; Crompton et al., 2024; Hasumi & Chiu, 2024; McGuire & Larson-Hall, 2017) indicated that explicit teaching of formulaic expressions or prefabricated lexical chunks such as collocations, phrasal verbs and lexical bundles can significantly enhance fluency. These expressions help reduce the frequency and length of pauses in learners' speech, thereby increasing the average length of continuous speech.

Secondly, repetition or rehearsal tasks have been shown to support fluency development. Studies suggest that when learners repeat or rehearse tasks, they are better able to sustain speech for longer periods (De Jong & Perfetti, 2011). This improvement is attributed to increased familiarity with the content, as well as opportunities to refine language choices and address earlier disfluencies (Gashan & Almohaisen, 2014; Ahmadian & Tavakoli, 2011). Repetition also contributes to faster speech rates, smoother articulation, and greater automatisisation (Tavakoli et al., 2016).

Thirdly, pre-planning tasks have received considerable attention in the literature. Numerous studies (e.g., Akpabio, 2024; Kazu & Kuvvetli, 2024; Cahyani et al., 2024; and de Jong, 2023) demonstrated that allowing learners some time to plan before speaking leads to improvements in oral performance, particularly in fluency. Moreover, Duan (2024) argued that the benefits of pre-planning can be maximised when learners are trained to use planning time effectively.

Finally, awareness-raising tasks and fluency strategy training, although less extensively researched, can also contribute positively to fluency development. These approaches do not only enhance learners' speaking performance but also empower them with greater control over their own

learning processes (Huda & Rahmawati, 2024; Tavakoli et al., 2016). Despite these promising findings, a major limitation across many studies is that they have been conducted in controlled laboratory settings rather than in authentic classroom environments with real learners.

Overall, the research reviewed highlights that fluency has become an increasingly important focus within the SLA field. However, relatively little attention has been given to how L2 teachers themselves conceptualise fluency or how they implement classroom practices to foster it (Stevens and Sheriff, 2025a; Tavakoli & Hunter, 2018).

Sheriff et al. (2025), in citing Brown (2011), said that having good English proficiency is a skill that is needed in today's market, social interactions and science and technology. According to many researchers, the use and influence of English appear unbiased to people who do not share the mother tongue; as such, the language operates worldwide irrespective of sociocultural and linguistic diversity. This is because it cannot be over emphasised, as one on the list of advantages enjoyed is the ability to speak English, which provides many benefits to life; thus, the reason why oral English proficiency is needed in the current era (Stevens, 2026 unpublished; Luo, 2023; Christian, McCarty, & Brown, 2020; Putri, Herdi, & Hamuddin, 2018). With all business meetings and conferences currently using English as a means for simple and effective communication regardless of your country of origin, English has a significant impact on the world's political, socioeconomic growth and institutional development. Thus, using English as a second or third language lowers the prevalence of ethnocentrism, linguistic conflict and the occurrence of misunderstandings.

Theoretical Framework

Automaticity Theory formed the theoretical framework of this study. It provides a strong explanatory basis for understanding the development of oral fluency in second language acquisition. It emphasises the gradual shift from controlled, effortful language processing to rapid, effortless performance through repeated exposure and practice. Building on this premise, Stevens and Sheriff (2025) conceptualised fluency as a multidimensional construct, integrating vocabulary, pronunciation, first language (L1) influence, sociocultural context and pedagogical approaches. Their model highlights that automaticity does not occur in isolation but emerges from the interaction of linguistic competence and environmental factors, thereby offering a holistic framework for analysing fluency development.

Similarly, Feruzi (2021) defined automaticity as the learner's ability to recognise and decode words with little or no conscious effort, which depends largely on mastery of alphabetic principles and vocabulary knowledge. This definition underscores the foundational role of linguistic competence in

achieving automatic processing. Tavakoli (2019) extended this perspective by focusing on the cognitive dimension, arguing that increased automaticity reduces the cognitive load on learners, thereby freeing up mental resources for higher-level language functions such as meaning construction and interaction. In other words, when lower-level processes like word recognition and pronunciation become automatic, learners can concentrate more effectively on communication.

Taken together, these perspectives suggest that automaticity is both a cognitive and sociolinguistic phenomenon. While Feruzi (2021) emphasised the internalisation of linguistic elements, Tavakoli (2019) highlights the cognitive efficiency gained through practice, and Stevens and Sheriff (2025) situated these processes within a broader sociocultural and pedagogical context. The logical implication is that repeated practice alone is not sufficient; it must be meaningful, contextually grounded, and supported by effective teaching strategies. Therefore, the commonly held notion that “practice makes perfect” can be refined to suggest that structured, purposeful and context-sensitive practice leads to automaticity, which in turn enhances fluency. This integrated view reinforces the importance of designing language instruction that not only builds linguistic knowledge but also promotes consistent and meaningful language use in real-life contexts.

Points of Convergence

All three authors agreed that repeated exposure and practice are essential for developing automaticity. Tavakoli (2019) explicitly linked repetition to reduced cognitive load, while Feruzi (2021) implied that continuous engagement with vocabulary and decoding strengthens effortless processing. Stevens and Sheriff (2025) also embed practice within pedagogical strategies that enhance fluency.

Each definition highlighted the transition from conscious, controlled processing to automatic performance. Feruzi (2021) described this as effortless word recognition, while Tavakoli (2019) framed it as reduced mental effort. Stevens and Sheriff (2025) incorporated this transition into broader fluency development.

All three perspectives linked automaticity to improved language fluency. Whether through faster decoding (Feruzi), reduced cognitive burden (Tavakoli), or a holistic integration of linguistic and contextual factors (Stevens and Sheriff), automaticity is seen as foundational to effective communication.

Points of Divergence

Stevens & Sheriff (2025) offered a holistic model for fluency analysis that includes a comprehensive framework that examined vocabulary,

pronunciation, L1, sociocultural factors, and pedagogy in pinning down the definition of Automaticity Theory, which future researchers can adopt. Feruzi (2021) emphasised phonological and orthographic familiarity as the foundation of automaticity. Tavakoli (2019) highlighted cognitive load reduction through repetition, aligning with psycholinguistic models of fluency.

The scope of analysis indicated that Tavakoli (2019) took a cognitive approach, emphasising mental processing and cognitive load during language use. Feruzi (2021) focused narrowly on lower-level linguistic processes such as word recognition, decoding, and vocabulary knowledge. Stevens and Sheriff (2025) offered a broad, holistic framework that includes linguistic, sociocultural and pedagogical dimensions.

Feruzi (2021) emphasised linguistic competence, particularly alphabetic and vocabulary knowledge. Tavakoli (2019) emphasised cognitive efficiency, highlighting how automaticity frees up mental resources, and Stevens & Sheriff (2025) emphasised contextual and instructional factors, arguing that automaticity develops through interaction between learners and their environment.

On the level of language processing, Feruzi (2021) is concerned with micro-level processes (word recognition and decoding). Tavakoli (2019) bridged micro- and macro-levels of processing, linking automaticity to overall speech production, while Stevens & Sheriff (2025) focused on macro-level fluency, thereby incorporating social context, L1 influence, and teaching methods.

Logically, the convergence of these views suggests that automaticity is a progressive process rooted in practice and leading to fluent communication. However, their divergence reveals that automaticity operates across multiple dimensions: linguistic (Feruzi, 2021), cognitive (Tavakoli, 2019), and sociocultural-pedagogical (Stevens and Sheriff). Together, they provided a layered understanding of automaticity starting from basic word recognition, moving through cognitive efficiency and culminating in a contextually appropriate and fluent language use.

Fluency Efforts

In a bid to combat English reading and speaking poverty among learners, Sierra Leone introduced free and quality education in schools some years ago; achieving quality seems slow (Thulla, Moriba, Adom & Mensah-Gborie, 2021). The Multiple Indicator Cluster Survey Round 6 of Statistics Sierra Leone (2017) also revealed that 84% of children in Sierra Leone could not read nor recite a simple story. This situation is alarming and depicts Sierra Leone's dire need for oral English language.

Even though writing demonstrates a solid grasp of how to use spoken language in regular communicative encounters, most Sierra Leonean instructors do not prioritise English-speaking talents while training students. Research suggests that there is a better association between English aural skills and written form (Sheriff, Stevens, Challay & Thulla, 2025; Stevens & Sheriff, 2025a; Stevens & Sheriff, 2025b; Akpabio, 2024; Alam & Uddin, 2013; Stevens, 2025). The majority of Sierra Leonean mentors don't emphasise English-speaking abilities, even though writing reveals a strong command of how to employ spoken language in typical communicative exchanges.

In this vein, numerous researchers have emphasised the requirement for language learning practices to engulf and scrutinise the learning and teaching of speaking abilities since many researchers have pointed out that a deficiency in good English speaking skills has caused learners to perform worse in both national and international examinations because they lack the skills that will foster their effective and efficient oral communication and expression skills.

Researchers like Rodrigo et al. (2023) and Lustenberger (2024) have recently looked at the considerable impact that societal responsibilities have on spoken English learners' performance (Sheriff and Stevens 2025a; Stevens et al. 2025). In addition to looking for family support, students look for beneficial resources like text/course books, dictionaries, other helpful materials, or any technological support to supply essential information for their growth of second language competence and competency. Bearing in mind this fact Robayo (2025) revealed, "In the context of modern teaching, strategies based on novel and sophisticated software or conceptual strategies are always needed to deal with the day-to-day teaching/learning situations in which the learners face difficulties, and without some strategies they perhaps cannot achieve the target" (Khan, 2011, p.1252).

In reality, the relationship between language and culture has drawn the attention of numerous academics. According to Stevens, Challay and Thulla (2023), "A language is part of a culture, and a culture is part of a language; the two are intricately interwoven so that one cannot separate them without losing the significance of either language or culture." They asserted that language and culture are intertwined and that language reflects culture as shared by many other social scientists. Thus, teaching a language automatically involves implicitly teaching culture.

A learner's access to various cultural goods like the internet, computers, pictures, paintings, books, and dictionaries (cultural capital) and a learner's relationships with teachers, parents, siblings, and peers (social capital) may have a reflective influence on what and how any individual learns a language. For this reason, the impact of a learner's background and environmental context on learning a second language is significant. When it

comes to speaking and conquering fears, shyness, mood, speech accuracy and other issues, parents are the first point of contact as socialisation agents, and their interactions are crucial. Lack of necessary assistance will diminish their speaking abilities, and excessive anxiety makes people less inclined to communicate, both of which have a negative impact on learners' success in oral English learning as a second language in the long term (Wu & Lin, 2014).

Robayo (2025) observed that the value system development is significantly influenced by social class, housing, and resource access, almost as much as by academic success. As opposed to Duan (2024), Fatima et al. (2024) argued that cognitive capacity has a direct impact on educational results, while socioeconomic background has an indirect influence. This is because cognitive ability directly affects language learning, whereas socioeconomic background has an indirect effect. The study arrived at the conclusion that, despite the fight being solely about supremacy, its effects from both points of view cannot be disregarded. The decreasing effects of socioeconomic background and the prominence of cognitive ability corroborate some of the statements made by modernisation theory.

In Sierra Leone, the assessment of oral English proficiency is largely confined to high-stakes external examinations such as the West African Examinations Council's West African Senior School Certificate Examination and international standardized tests like the International English Language Testing System for students seeking opportunities abroad. This exam-oriented educational paradigm fosters a narrow focus on performance outcomes, often at the expense of comprehensive language acquisition. Consequently, learners are less inclined to engage with the foundational aspects of English necessary for holistic communicative competence.

Furthermore, instructional practices tend to marginalise the development of productive and receptive oral skills, namely speaking and listening, since these are not systematically emphasised in formal assessment frameworks. Within such a context, academic progression and perceived success are predominantly contingent upon examination results, reinforcing surface-level learning strategies. From a linguistic perspective, this results in limited language internalisation, as learners rely heavily on rote memorisation rather than meaningful interaction with the language. This deficit becomes particularly evident in authentic communicative settings, where learners frequently exhibit communication apprehension, characterised by low self-efficacy, restricted lexical repertoire and substandard phonological control. These challenges collectively impede the development of fluent and spontaneous oral expression, as corroborated by recent studies (Duan, 2024; Akpabio, 2024; Jacob, 2022; Knapp, 2021; Crystal, 2020; Christian et al., 2020; Fatima et al., 2020).

It is ridiculous to know that the majority of the senior secondary school pupils in Sierra Leone can't communicate in simple and clear English; hence, they prefer the use of lingua franca (Krio) and their native languages over the English language. This tendency is a common oral English language learning disorder characterised by students' lack of English communication skills, self-confidence as they refrain from speaking English, and self-efficacy. There are several reasons why secondary school pupils in Sierra Leone have difficulties in learning how to speak English and do well on tests (Sheriff et al., 2025). The reasons include the failure of modern language instruction methods to foster performance, proficiency and competency and less attention being given to the development of students' English-speaking abilities inside and outside of the classroom. Also, less attention is focused on students' ability and willingness to successfully use the language; thus, the linguistic environment to promote language diversity is limited (multilingualism and its effects). In addition to other language problems, strategies and practices for using textbooks, television, websites and other things in the classroom to use language and other factors.

Knowledge Gap

Existing studies on vocabulary, pronunciation and oral English fluency focused on Asian and Western ESL/EFL contexts with limited empirical research on the interplay of factors (linguistic, cognitive and sociocultural). They insufficiently investigated the impact of code-switching, cultural attitudes towards speech and English media exposure on automaticity and fluency development, while Automaticity Theory was not fully tested in multilingual and multicultural contexts like Sierra Leone.

The relevant literature in this work revealed the knowledge gap that exists in extant literature. However, there are a few automaticity theories on oral English fluency in the country, but these are on the impact of code-switching, such as those of Steoral et al. (2025), Thulla et al. (2021) and Stevens et al. (2023). Developments in oral English fluency practice in the country's academic institutions need to be investigated for effective oral English fluency and proficiency. Thus, the aim of this ESL oral proficiency test for senior secondary school learners is to assess best practices that will help combat these lapses.

This study also addresses a comparative practice gap in understanding the dual impact of lack of English fluency on both academic performance and social integration, particularly in senior school settings. It provides insights into teachers' perspectives, highlights the need for effective support systems, and offers practical implications for imperial proficiency tests in senior secondary school learners with limited English fluency. By offering an

empirical and multifaceted approach, this research contributes valuable new insights to the field of education and language proficiency.

Research Methodology

The study's mixed-method approach yielded accurate data on individuals, circumstances and events as well as correlations between variables. Surveys of the sample population, questionnaires, conversations and class observation were the data collection techniques used. A speaking evaluation method was used to gauge the learners' capacity for unstructured peer communication as well as supervised contact with instructors and researchers. They were also taught the parallels and discrepancies between English and their original tongues. The learners recited short stories, passages of text, or open conversations as exactly and clearly as they could, even though the researchers' main focus was on correct pronunciation to evaluate the learners' oral fluency skills and proficiency. To guarantee that the sample is representative of the target population, Slovin's sample size formula was used to determine the sample size. A purposive random sampling procedure was then employed and arrived at 1000 respondents using 4 as the sample size interval.

Ethical Consideration

Confidentiality was maintained by assuring participants that all information provided would be kept secure and used solely for academic purposes. Data were analysed collectively rather than individually to prevent identification. In line with this, anonymity and privacy were protected by concealing respondents' identities in all research documents, ensuring that neither personal nor institutional information could be traced back to them. Accuracy was another important consideration. The researchers ensured that all reported findings reflected participants' views truthfully and were not taken out of context. Objectivity was also upheld, as the researchers avoided personal bias and ensured that all perspectives were fairly represented.

Integrity guided the researchers' conduct throughout the study. Participants were protected from physical and psychological harm and were informed of their right to withdraw at any stage without consequences. Informed consent was obtained through signed consent forms, which clearly outlined the purpose of the study and participants' rights.

Debriefing was conducted to explain the true nature of the research before and after participation, ensuring that respondents were fully aware and comfortable. Participants' rights were respected at all times, including the freedom to skip questions or decline participation entirely. Data protection measures were implemented to safeguard information from unauthorised access. Furthermore, the researchers ensured that the study was free from

plagiarism by properly acknowledging all sources and avoiding misrepresentation of information. Overall, these ethical practices ensured transparency, trust, and credibility in the research process.

Results

The results were analysed via the study objectives: discerning the relationship between learners' bi/multilingual backgrounds and their English adeptness and, the influence of societal and cultural temperateness on language learning. This is done to determine the research effectiveness in improving the oral fluency gauche.

Objective 1: Determining the relationship between learners' bi or multilingual backgrounds and their English adeptness

Table 1: Speaker's language(s) background and speaker's L2 proficiency level correlation

Districts	Learners	Responses			
		Agree	(%)	Disagree	(%)
Bo	400	385	85	15	5
Bonthe	150	102	68	48	32
Moyamba	250	225	90	25	10
Pujehun	200	160	80	40	20

Table 1 The study investigated the correlation between speakers' L1 backgrounds and their English language proficiencies. Findings indicated that the majority of participants in Bo District acknowledged significant differences between English and their native languages in terms of pronunciation, spelling and sound systems. In Bo District, 85% of respondents agreed that these differences had a considerable impact on spoken English acquisition and vocabulary development. The study suggested that, if not carefully addressed with a strong emphasis on spoken English principles, these differences could lead to persistent pronunciation challenges. This trend was further supported by data from other districts, with 68% of respondents in Bonthe, 90% in Moyamba, and 80% in Pujehun expressing similar views. However, a minority of participants disagreed, arguing that the differences between their native languages and English were not significant and had minimal impact on oral fluency. Bonthe District recorded the highest level of disagreement at 32%, followed by Pujehun with 20% and Moyamba with 10%, while Bo District had the lowest proportion of dissenting responses at 5%.

These findings highlighted varying perceptions across districts regarding the influence of L1 on English language learning. From the table, it is concluded that the differences that exist between these two languages pose a serious problem for learners from multilingual backgrounds. This is in line with the studies of Fatima et al. (2024), Luo & Han (2023), Chan, Ying, Hall and Ashley (2016) and Mahmoudi & Mahmoudi (2015), who stated that

multilingualism poses a problem for ESL learners. They focused on sociolinguistic factors, such as L1 influence and cultural restrictions, which provide a nuanced understanding of the challenges faced by learners in this study.

From the perspective of authenticity theory, the study highlighted that oral fluency development is not solely a product of linguistic knowledge but a reflection of learners' engagement in real-life, meaningful language use. Pupils who frequently participated in authentic speaking contexts such as debates, role-plays and classroom discussions tended to develop higher self-confidence, pronunciation accuracy and lexical flexibility. However, where instructional practices remained limited to rote learning or exam-orientated drills, fluency stagnated, revealing a disconnect between academic progression and communicative competence.

In summary, the results from Table 1 demonstrated a critical gap between educational advancement and oral English proficiency across the study area. This discrepancy suggested that despite formal educational attainment, the pedagogical approaches employed were insufficiently communicative and authenticity-based, thereby constraining learners' oral language development. To bridge this gap, the integration of task-based and authentic communicative strategies supported by consistent oral performance assessment that caters to this distinction between learners' background language and ESL was recommended as essential for aligning learners' educational level with their expected oral English fluency outcomes.

Table 2: Influence of L1 Differences on Learners' Oral English Aptitude

District	Learners	Responses		Ratio	
		Agree	Disagree	(%)	(%)
Bo	400	315	85	70.5	20.5
Bonthe	150	130	20	88	12
Moyamba	250	230	20	92	08
Pujehun	200	140	60	70	30

Table 2 presented respondents who agreed that disparities between their L1 and English affect their fluency, proficiency and overall competence in oral English, alongside those who disagreed and believed such differences had little or no effect. The findings indicated that these disparities generally hinder learners' ability to learn, speak, teach and effectively use English. Differences in sound systems were seen to strongly influence pronunciation, spelling, and vocabulary development. The analysis showed that Moyamba District recorded the highest level of agreement, with 92% of respondents affirming that these differences significantly impacted spoken English fluency, knowledge development and pronunciation. Bonthe District followed with 88%, while Pujehun recorded 70%. Bo District had the lowest proportion of agreement at 70.5%. The data also revealed a slight percentage gap between

Moyamba and Bonthe (4%), indicating relatively similar perceptions between the two districts. Overall, most respondents acknowledged that differences between their native languages and English played a substantial role in shaping their language learning and usage.

Conversely, Table 2 also identified respondents who disagreed, stating that there were minimal or no significant differences between the sound systems of their native languages and English. These respondents believed that such differences had little or no impact on their oral fluency. Pujehun District recorded the highest level of disagreement at 30%, followed by Bo with 20.5%, Bonthe with 12%, and Moyamba with the lowest at 8%. This suggested that, for some learners, perceived similarities between languages reduced the influence of L1 on English language acquisition.

The findings demonstrated that phonological transfer from learners' L1s remained a central challenge in oral English fluency development across all four districts, though the perceived severity varied. The data also highlighted a general awareness among learners that sound system mastery and vocabulary growth are mutually reinforcing components of oral proficiency. Within the theoretical framework of authenticity theory, these results suggest that learners benefit most when pronunciation and vocabulary instruction are embedded in real communicative contexts that simulate authentic English use, allowing for both auditory exposure and practical articulation practice.

In conclusion, this shows the total number of learners from Southern Sierra Leone institutions who, based on the responses analysed, determined that these differences, if they exist, have no bearing on their vocabulary knowledge development, pronunciation, oral fluency, learning of oral English, and general use of English in their natural communication exercises because there are few or no differences but more similarities in the sound systems. This suggests that they are proficient in other linguistic areas of the English language and the development of fundamental abilities, such as pronunciation, and that these do not in any way provide a problem to them as learners. As a result, their goal is to become as proficient in English as a native speaker. This is supported by the studies of Akpabio (2024), Peltonen (2024), Kaushika (2024), Rodrigo et al. (2023), and Asia-Pacific Education Researcher (2021). Overall, the data suggest that achieving oral fluency requires instructional approaches that promote repeated exposure, practice, and meaningful interaction in English. By minimising overreliance on conscious rule application and encouraging communicative use, teachers can help learners move from controlled processing to automatic language use, as emphasised by Automaticity Theory.

Table 3: Learners' Oral English Articulatory and L1 Correlation

District	Learners	Responses		Ratio	
		Agree	Disagree	(%)	(%)
Bo	400	160	240	40	60
Bonthe	150	136	14	93	07
Moyamba	250	226	24	92	08
Pujehun	200	160	40	60	40

Table 3 examined respondents who affirmed a correlation between their L1 competence and English language proficiency. The findings indicated that a large majority of respondents in Bonthe District (93%) reported that their oral English competence was comparable to their native language ability and that they felt confident speaking English. This was closely followed by Moyamba District (92%), while Pujehun (60%) and Bo District (40%) recorded lower levels of agreement.

In contrast, a significant proportion of respondents in Bo District (60%) disagreed, stating that their fluency and proficiency in their L1 did not correspond with their competence in English. This view was also shared by respondents in Pujehun (40%), Moyamba (8%), and Bonthe (7%). The data further revealed minimal variation at the upper tier between Bonthe and Moyamba (a 1% difference), while a wider gap of 20% existed between Bo and Pujehun at the lower tier. These findings have important implications for Automaticity Theory. The strong correlation reported in Bonthe and Moyamba suggests that higher proficiency in L1 may facilitate the transfer of underlying linguistic skills, thereby supporting the development of automaticity in English. Learners in these districts are more likely to process language rapidly and with less conscious effort, leading to greater fluency and confidence.

Conversely, the weaker correlation observed in Bo and Pujehun points to limited transfer and greater L1 interference, which can hinder the progression from controlled to automatic processing. This interplay between L1 competence and L2 development highlights that while L1 can serve as a cognitive foundation, significant structural differences may disrupt automaticity, requiring more targeted, practice-based instruction to achieve fluent and spontaneous English use. This is in line with Duan. (2024) Akpabio, (2024), Hasumi, (2024) Thulla, Moriba, Adom & Mensah-Gborie (2021); Yaseen (2018) and Ying Zheng (2008) who noted that Speaking plays a crucial role in influencing learners' vocabulary knowledge development, pronunciation and oral English learning despite conflicting opinions that there are differences between the sound systems of their mother tongues, as shown by the analysis above.

Although some of these respondents downplayed the impact of phonological differences, they nonetheless acknowledged the importance of deliberate attention to oral English practice. They emphasized that even in the

presence of perceived sound system similarities, effective oral English learning required careful pronunciation training, continuous exposure to authentic spoken English and active vocabulary development. They also recognized that comprehensible input that is, consistent engagement with accurate English speech models was crucial for refining both pronunciation and vocabulary competence.

Together, the findings demonstrated that phonological transfer from learners' L1s remained a central challenge in oral English fluency development across all four districts, though the perceived severity varied. The data also highlighted a general awareness among students that sound system mastery and vocabulary growth are mutually reinforcing components of oral proficiency. Within the theoretical framework of Authenticity Theory, these results suggest that learners benefit most when pronunciation and vocabulary instruction are embedded in real communicative contexts that simulate authentic English use, allowing for both auditory exposure and practical articulation practice.

Objective 2; Influence of societal and cultural temperateness on learning English.

Table 4: Speaking English beyond the Classroom Environment

District	Learners	Responses		Ratio	
		Occasionally	Never	(%)	(%)
Bo	400	280	120	70	30
Bonthe	150	26	124	16	86
Moyamba	250	15	235	08	92
Pujehun	200	30	170	15	85

Table 4 presented respondents who reported that they either never or only occasionally practised oral English outside the classroom due to sociocultural constraints. The data showed that a majority of respondents in Bo District (70%) indicated that they occasionally practised speaking English in informal contexts, such as with friends, family and within their communities. This was followed by Bonthe District (16%), Pujehun District (15%), and Moyamba District (8%).

In contrast, a significant number of respondents reported that they never used English in their everyday interactions. Moyamba District recorded the highest proportion at 92%, followed by Bonthe (86%), Pujehun (85%), and Bo District (30%).

These findings are explained through automaticity theory, which emphasises that fluency develops through frequent, meaningful and repeated use of language. In districts such as Moyamba, Bonthe and Pujehun, where the majority of learners reported little or no open practice, opportunities for repetition and real-life application were limited. This restriction hindered the development of automaticity, as learners remained dependent on conscious

effort rather than achieving spontaneous and fluent speech. Conversely, respondents in Bo District who reported occasional practice experienced more gradual improvement in fluency, as regular exposure and use of English in authentic contexts support the transition from controlled processing to automatic language use. Overall, the data underscored the critical role of sociocultural environment in either facilitating or constraining the development of automaticity in oral English proficiency.

This is in connection with the studies of Stevens & Sheriff (2025); the findings demonstrated that phonological transfer from learners' L1s remained a central challenge in oral English fluency development across all four districts, though the perceived severity varied. The data also highlighted a general awareness among students that sound system mastery and vocabulary growth are mutually reinforcing components of oral proficiency. Within the theoretical framework of authenticity theory, these results suggest that learners benefit most when pronunciation and vocabulary instruction are embedded in real communicative contexts that simulate authentic English use, allowing for both auditory exposure and practical articulation practice. Duan (2024); Akpabio (2024); Kaushika (2024). Luo (2023) and Rodrigo et al. (2023) and Zhang (2022) noted that the lack of motivation by societal and cultural stakeholders in encouraging English as a second language or English as a foreign language (ESL/EFL) learners impedes the growth of oral fluency and competency. They also argued that society and cultural background have a lot to play in the oral fluency achievement of ESL/EFL learners. Since these districts were Muslim-dominated and pledged allegiance to the Arabic language, speaking the English language is seen as a deviation from their cultural and societal norms.

Activities such as creative writing, poetry composition and public readings were identified as instrumental in fostering learners' oral confidence and classroom participation. The data further indicated that consistent engagement in public speaking exercises enhanced students' social interaction, presentation skills, critical thinking and leadership capacity. Learners who frequently participated in such activities demonstrated resilience and composure when facing opposition, thereby validating the assertion that "the empowerment and eagerness for oration are cultivated during early schooling". This finding reinforced the principle that frequent exposure to authentic communicative practices enables learners to internalise linguistic structures and sociocultural norms, ultimately contributing to holistic oral English development.

From the perspective of sociocultural theory (Vygotsky, 1978), this study underscored that the development of oral English fluency among the respondents was a socially mediated process. Learners acquired communicative competence not merely through formal instruction but through

collaborative interactions, peer modelling and teacher scaffolding within authentic speaking environments. Public speaking activities, debates and classroom discussions provided what Vygotsky termed the Zone of Proximal Development (ZPD), a space in which learners advanced from dependent to independent use of English through guided participation. When teachers and peers offered supportive feedback in these authentic communicative contexts, learners internalised both the linguistic and sociocultural dimensions of English use. In this way, oral proficiency evolved as an interactive co-construction of knowledge, rather than a static individual ability. This integration of authenticity theory and sociocultural theory therefore illuminated that genuine, contextually meaningful language use combined with social support served as the most effective pathway for fostering confidence, fluency and native-like oral English competence among senior secondary school learners in Sierra Leone.

Table 5: Simultaneous use of native and English cultural practices

District	Learners	Responses		Ratio	
		Agree	Disagree	(%)	(%)
Bo	400	160	240	40	60
Bonthe	150	143	07	93	07
Moyamba	250	228	22	92	08
Pujehun	200	120	80	60	40

Table 5 presented respondents who agreed that they found it confusing to practise both their native and English cultures simultaneously within their homes and communities. Many participants explained that their societies often encouraged exclusive use of indigenous languages, largely due to the influence of language loyalists and limited exposure to formal English education. The findings showed that a significant proportion of respondents in Bonthe District (93%) reported avoiding the simultaneous use of both cultures because it created confusion for them and for members of their communities. This pattern was closely followed by Moyamba District (92%), Pujehun (60%), and Bo District (40%). The analysis further revealed that most respondents in this category were individuals who had limited interaction with urban environments or lived with relatives who had little or no English education. In some cases, community influences such as strong adherence to indigenous linguistic traditions or religious priorities discouraged the adoption of English cultural practices, reinforcing a preference for native language use. This is supported by the studies of researchers like Kaushika (2024), Peltonen (2024), Huda (2024), Rodrigo et al. (2023), Jacob (2022) and Knapp (2021).

On the other hand, the table also showed a miniscule proportion of respondents in Bo District (60%) who opposed the above view on the simultaneous use of both cultures because it never created confusion for them or other members of their communities. This array was closely followed by

Pujehun District (40%), Moyamba (08%), and Bonthe District (07%). This is in line with the studies of researchers like Yihao (2024) and Cahyani (2024). Crompton (2024) and Crystal (2020) opined that comprehensible input from society (parents, mates, friends, teachers, etc.) goes a long way in enhancing learners' oral abilities and language learning and acquisition.

It was revealed during discussions that this was because of the fear that their native languages and cultures may be forgotten, endangered or abandoned. They confirmed that parents or community members in Islamic-dominated areas did not encourage them to learn/practise English culture before their Islamic (Quran) education. This was said to have greatly hindered their oral English fluency and learning processes.

Thus, they found difficulty in speaking English because the native cultures most times conflicted with the practice of English culture. This wave of not allowing learners to freely practise the English culture was against the Islamic preaching and culture. This was mostly common among the districts that were Islam-dominated, and these Muslims still wanted to continue their grip on such communities. They also revealed that community members discouraged learners from practising the English culture for various reasons ranging from language culture maintenance to language loyalty. The respondents were of the opinion that these differences can be dealt with through regular practice of both cultures, even if moderately, at schools and homes. The result established conformity in the cultural challenges faced by ESL learners in the study area and Africa as a whole. This was similar to other researchers like Alcazaren & Rafanan (2017), who, in their study, emphasise that culture is one of the elements that rapidly depreciates the learning and teaching of ESL in Asian and African countries.

From the perspective of automaticity theory, these findings suggest that limited and inconsistent exposure to English restricts the development of automatic language processing. When learners are unable to integrate English into their daily sociocultural practices, they lack the repeated, meaningful interaction necessary to internalise the language. As a result, their use of English remains effortful and controlled rather than fluent and automatic. The tension between native and English cultural practices, therefore, creates an environment where learners cannot practise English frequently enough to achieve automaticity, ultimately hindering their oral proficiency and communicative confidence.

Discussion

The findings of the study revealed a pervasive deficiency in learners' ability to construct grammatically well-formed and pragmatically appropriate English sentences with a high degree of fluency. This limitation was indicative of underdeveloped procedural linguistic competence, where learners exhibit

restricted control over syntactic structuring, lexical retrieval, and real-time language processing. Consequently, this lack of automaticity significantly constrained their oral performance, resulting in consistently poor outcomes in oral English assessments, as well as in broader national and international examinations that required spontaneous language production and communicative competence.

Furthermore, the data demonstrated a marked spatial disparity in fluency levels, with learners in the interior regions of Sierra Leone exhibiting substantially lower oral proficiency compared to their counterparts in district headquarters towns. This disparity can be attributed to differential exposure to English, limited access to quality pedagogical resources, and varying sociolinguistic environments that either constrained or facilitated authentic language use. Learners in more remote settings are often embedded in predominantly L1-dominant communities, thereby reducing opportunities for meaningful interaction in English and inhibiting the development of communicative automaticity.

Importantly, these findings corroborated and extended prior empirical and observational accounts, including WAEC external examiners' reports that have consistently highlighted declining standards in spoken English performance. They are also aligned with contemporary research by Duan (2024), Akpabio (2024), and Kaushika (2024). Peltonen (2024) and Rodrigo et al. (2023) all underscored the interplay between limited communicative practice, ineffective pedagogical approaches and sociocultural constraints as critical determinants of reduced oral fluency. Collectively, this body of evidence reinforces the argument that oral English proficiency is not merely a function of formal instruction but rather an emergent outcome of sustained interaction between cognitive processing capacity, linguistic knowledge and sociocultural context.

In their study, Stevens, Challay and Thulla (2025), drawing on and extending the foundational work of August and Shanahan (2006), reported a significant disparity in academic attainment associated with language background. Their findings indicated that only 10% of pupils identified as first-language English speakers successfully completed secondary education, compared to 31% of non-English language learners. This counterintuitive trend suggested the presence of complex sociolinguistic and educational variables, including differential motivation, instructional quality and language support structures. More critically, the persistence of this disparity across second- and third-generation immigrant cohorts pointed to a deeply entrenched, intergenerational transmission of linguistic and educational disadvantage, likely mediated by structural inequalities and limited access to enriched language learning environments.

Within the West African context, empirical evidence from the West African Examinations Council (WAEC) Chief Examiner's reports (2021–2024) consistently underscored a systemic decline in English language proficiency among candidates. Quantitatively, the English Language Performance Score Range (A1–C6) recorded a decrease from 54.06% in 2021 to 46.79% in 2024, representing a statistically significant decline of 7.27 percentage points. This downward trajectory, further corroborated by longitudinal reports in the Daily Guide (2021–2024 editions), suggested a sustained deterioration in learners' communicative competence, particularly in productive skills such as speaking and writing. Such trends may be interpreted as symptomatic of broader deficiencies in pedagogical practices, assessment alignment and opportunities for authentic language use.

From a theoretical standpoint, Brown (2011) posited that oral production remains one of the most cognitively demanding aspects of second language acquisition, even when learners demonstrate partial mastery of linguistic subcomponents such as phonological clustering, redundancy management, colloquial expressions and prosodic features like intonation. This assertion highlighted the distinction between declarative knowledge of language forms and the procedural ability to deploy them spontaneously in real-time interaction. Brown's argument is particularly salient in the context of Sierra Leone, where learners often exhibit receptive competence and partial structural awareness but lack the fluency and automaticity required for effective oral communication.

Consequently, the convergence of these empirical and theoretical perspectives suggests that the challenges observed in West African Secondary School Certificate Examination (WASSCE) performance are not merely attributable to deficits in linguistic knowledge but rather to limitations in the procedural and automatic conversion of that knowledge under communicative conditions. This reinforces the need for pedagogical interventions that prioritise interactive, communicative and fluency-orientated approaches aimed at bridging the gap between language competence and performance in authentic assessment contexts.

Conclusion

The study's findings showed that the majority of the pupils struggled to speak English fluently. This is because there are religious and sociocultural restrictions on most of the learners, especially those in the Muslim-dominated areas, and the late exposure of these learners to the English language is also a contributing factor. One-on-one interviews with instructors and learners in the study area complemented qualitative responses. Across the interview responses, the following patterns emerged: Vocabulary and pronunciation were the two most immediate barriers to fluent speech, while L1 background

determined the extent of phonological and grammatical transfer that affected fluency. Sociocultural factors also shaped learners' confidence, participation and willingness to speak. It was also concluded that teaching methods either supported or hindered oral fluency, depending on whether they provided adequate communicative practice.

In the interviews, the respondents were able to point out most of the lapses in the educators' attitude, teaching methodology and interaction with their pupils. They were also able to proffer some solutions to these ineptitudes. Their society and the multilingual background of the pupils were also revealed to be a negative player to some extent in the learners' acquisition and learning of oral English fluency. These respondents were found to be lagging behind in accessing the web for teaching and learning purposes because of many reasons that were expressed during the interview sessions. This research revealed the knowledge gap that existed. However, a few works and relevant information garnered by respondents on oral English fluency in the country, if properly utilised, are of help in fostering the intended improvements. This work's findings will lend support in closing the existing knowledge gap in oral English fluency tactlessness in the country, as this research assessed the best sociocultural and linguistic practices that will help combat these lapses.

In conclusion, the research demonstrated that unless pronunciation and oral skill development are systematically prioritised, students in the study area are likely to continue to underperform in national and international examinations. Educators must therefore provide structured oral English drills, consistent pronunciation modelling and opportunities for public speaking to foster both accuracy and automaticity in learners' oral production. Such deliberate and sustained interventions are essential for bridging the gap between L1 influence and L2 proficiency, ultimately enabling learners to achieve functional and confident English communication. The study also demonstrated that learners' oral English performance is profoundly shaped by a nexus of teaching-learning procedures, classroom conditions, teacher modelling and sociocultural influences. By implementing sustained, structured and culturally sensitive instructional strategies that integrate public speaking, audio-visual tools and automaticity theory principles, teachers can cultivate learners' oral proficiency, confidence and motivation. Concurrently, reflective teaching practices and active community engagement serve to reinforce these gains, transforming teaching challenges into opportunities for improved learner outcomes and enhanced performance in national and international assessments.

Contribution to Knowledge

This study made several important contributions to existing scholarly knowledge on English oral fluency, especially in the context of senior

secondary school learners in multilingual environments. These contributions were categorised into theoretical, empirical and practical (pedagogical) contributions.

Theoretically, this study contributed by expanding understanding of fluency beyond speed and accuracy. It also showed that vocabulary gaps, pronunciation anxiety and sociocultural discomfort also significantly shaped fluency. The result demonstrated that learning is socially mediated, confidence is culturally conditioned, while community attitudes shape language use. This research broadened the fluency definition by emphasising understudied psycholinguistic and sociocultural factors; enriched theories of L1 transfer by evidencing its linguistic and cultural dimensions; and deepened theoretical debates through real-world examples of culture's impact on language performance.

Empirically, this study provided context-specific evidence from senior secondary schools, filling a gap in SLA literature, and demonstrated the interplay of multiple factors, such as vocabulary gaps leading to hesitation and thus loss of fluency; L1 background leading to mispronunciation, anxiety and reduced output; and sociocultural pressure leading to avoidance, low practice and poor fluency. This holistic view advanced empirical understanding of how fluency was jointly shaped by linguistic, psychological and cultural forces.

Pedagogically, practical contributions made revealed gaps in current teaching practices, such as teacher-centred methods, exam-driven instructions and limited oral activities directly reduced opportunities for speaking. This information can be used to guide curriculum reforms toward communicative and pupil-centred approaches. The study highlighted the importance of vocabulary and pronunciation training with culturally relevant recommendations, since sociocultural norms affect learners' confidence. These findings suggested safe speaking environments, culturally inclusive topics and strategies to reduce peer ridicule.

Methodologically, contributions demonstrated the value of qualitative interviews for fluency research, as most fluency studies relied on recordings and quantitative measures (speed, pauses). The use of interviews revealed that psychological and social factors are not captured by numbers. This encouraged more mixed methods or qualitative approaches in future research. It offered a model for analysing fluency factors holistically, as the study structure examined vocabulary, pronunciation, L1 sociocultural factors, and pedagogy, which offered a comprehensive framework for future researchers.

Overall, this study contributed to knowledge by expanding theoretical understanding of oral fluency to include psychological and cultural dimensions, thereby providing new empirical insights from a unique educational context. It improved pedagogical practice by identifying practical teaching and learning barriers and demonstrating holistic methodology for

fluency research. Together, these contributions enriched both the academic literature and classroom practice in second language oral proficiency.

It was advised that English language teachers offer regular public speaking activities to help students develop their social skills, interactions, presentations and capacity for thought and leadership. This will help students become more proficient oral English learners. Giving children the flexibility to articulate well-reasoned, impassioned ideas, thoughts and impressions that are worth hearing and presenting to others will improve their oral English fluency. As an illustration, having students create and read poetry, stories, or books out loud can make learning entertaining for both students and teachers.

Summary and Recommendations

The study investigated sociocultural and linguistic factors affecting oral English proficiency among learners in Sierra Leone, using a mixed-methods approach that combined questionnaires and semi-structured interviews with 1000 participants. Findings revealed that over 85% of learners experienced significant pronunciation difficulties, largely due to first language (L1) phonological interference, limited exposure to spoken English and insufficient explicit pronunciation instruction. Traditional teaching methods, particularly grammar-translation and rote memorisation, were found to hinder oral fluency by prioritising rule memorisation over meaningful communication and interactive practice. In contrast, learners exposed to more resource-rich, urban environments demonstrated higher proficiency levels, highlighting the importance of environmental input and access to English in media and social contexts.

The study further identified the effectiveness of learner-centred, interactive strategies such as public speaking, debates, peer discussions, and the use of audio-visual materials, which aided in enhancing fluency, confidence and communicative competence. These approaches are supported by repeated, meaningful practice, which promotes the automaticity theory of language skills, enabling learners to process and produce speech more efficiently. However, sociocultural factors, including parental attitudes, religious influences and strong attachment to native languages, often restricted students' use of English outside the classroom, thereby limiting opportunities for practice and creating disparities in proficiency.

The findings emphasised that improving oral English proficiency requires more than curriculum coverage; it demands the creation of authentic communicative environments, encouragement of learner autonomy and the integration of culturally sensitive teaching practices. Overall, the study concluded that a shift from teacher-centred, rote-based instruction to interactive, communicative and contextually responsive pedagogies is essential for enhancing oral proficiency. Such approaches not only improve

linguistic accuracy but also foster critical thinking, confidence and leadership skills, equipping learners for effective participation in academic and professional communication.

Recommendations

Since language, societal and cultural differences contribute to learning difficulties for students, it is recommended that teachers adopt a social, class and cultural perspective when designing lessons and teaching English to learners of English as a second or foreign language. Implementing these strategies can provide new direction to schools and positively influence students' performance in national and international examinations such as WASSCE and the International English Language Testing Skills (IELTS).

The study revealed that respondents faced difficulties with spelling during oral English lessons and encountered challenges in word recognition, which affected their vocabulary development. Therefore, it is recommended that teachers design lessons emphasising phonetic drills, spelling, word identification and recognition exercises. Activities such as dictation, spelling bees, vocabulary drills and oral speech exercises can help reinforce these skills.

Many students reported that differences in sounds between their mother tongues and English, combined with other challenges, negatively affected their willingness to practise speaking English. Some avoided speaking for fear of being ridiculed. It is therefore recommended that teachers design courses that specifically address these challenges and provide supportive opportunities for students to practise oral English confidently.

Sociocultural Exposure: Students should be encouraged to engage with English media, including films, podcasts, books and social media, to improve their listening and speaking skills. Parents, religious leaders, and other community stakeholders should actively support learners in practising oral English both at school and within the community, as this will enhance performance in WASSCE and other public examinations.

The adoption of interactive learning approaches where teachers incorporate role-plays, discussions, debates and storytelling to promote active learner participation and improve oral communication skills. Technology integration was recommended to include the use of language learning applications, online pronunciation tools and multimedia resources, which can provide students with additional exposure to spoken English and support independent learning.

Encouraging English-speaking environments to include schools promoting and organising English-speaking clubs, competitions and interactive activities that motivate learners to use the language outside their classrooms. Incorporation of teacher training and modern teaching methods

where educators are trained in learner-centred approaches that focus on communication-based learning rather than rote memorisation. Rural Area Support by Government and educational institutions to invest in improving language learning resources in rural schools to bridge the urban-rural gap in English proficiency.

It is strongly advised that teachers of English pay careful attention to language and sociocultural differences, recognising their influence on students' oral English proficiency and communicative competence. Such considerations should inform all aspects of instructional practice, including lesson planning, course design, classroom exercises, assignments and practical presentations. By explicitly integrating these factors into teaching, educators can create learning environments that foster students' oral English development, enhance participation and improve overall performance in both classroom and public examination contexts.

The study further indicated that multimedia and audiovisual resources constitute highly effective tools for enhancing oral English learning. Teachers are encouraged to incorporate diverse media, including action, comedy and mystery films; television programmes; online platforms such as YouTube and Vidmate; and other interactive audio-visual content into lesson delivery. Exposure to authentic English usage through these media enables students to internalise correct pronunciation, intonation, vocabulary and grammatical structures, while simultaneously providing cultural context that enhances sociolinguistic competence.

The strategic use of audio-visual aids aligns with principles of automaticity theory, facilitating repeated practice and the gradual development of fluent, accurate and contextually appropriate oral communication.

The research also revealed that a significant proportion of teachers in the study area lacked formal training in English language pedagogy. This gap underscores the need for comprehensive teacher professional development programmes focused on the teaching of English as a second language. Training should encompass the design and implementation of communicative lessons, selection and adaptation of materials that effectively support oral language learning, and the facilitation of interactive activities such as debates, role-plays, public speaking and storytelling. Teachers must also be equipped with strategies to scaffold students' learning, manage classroom dynamics and address challenges arising from L1 interference and sociocultural diversity.

Additionally, teachers should receive targeted training on assessment techniques that accurately measure oral proficiency, vocabulary acquisition and communicative competence in realistic, high-stakes contexts such as WASSCE and IELTS. By developing a reflective and evidence-based approach to teaching, educators can cultivate professional credibility, ensure

alignment between instructional goals and student outcomes, and support learners in achieving both academic and communicative success.

Enhancing oral English teaching in institutions requires an integrated approach that combines sociocultural sensitivity, multimedia-facilitated learning, rigorous teacher training and evidence-based pedagogical strategies. Implementing these recommendations can significantly improve students' oral English competencies, foster lifelong language learning skills and position learners for success in national and international assessment contexts.

Learners of English as a second language (ESL) benefit significantly from the use of visual aids, whether created by teachers or students themselves. Self-created visual tools, such as vocabulary cards, graphic organisers, sentence frames and other illustrative devices, facilitate knowledge transfer, reinforce prior learning and help consolidate existing knowledge while promoting the comprehension of new information. It is therefore recommended that oral English teachers encourage students to develop their own visual aids, integrating artistic and creative expressions into lessons. Such practices foster reflective thinking, enhance vocabulary retention and provide students with greater confidence in expressing themselves orally.

Moreover, incorporating ESL learners into interactive activities, including drawing exercises, picture-based spelling, script performances, and theatrical plays, offers additional avenues for knowledge demonstration and language practice. Engaging students in these forms of active learning not only strengthens oral communication skills but also enhances learners' proficiency, fluency and communicative competence. Teachers should systematically incorporate public presentation drills, role-plays and performance-based activities into the curriculum to provide meaningful opportunities for students to practise English in authentic contextualised situations.

The study also highlighted the persistence of traditional teacher-centred instructional approaches, such as the grammar-translation method and rote memorisation, which rely heavily on textbooks and limit active student engagement. To counter this, teachers should adopt learner-centred pedagogical methods that promote participation, interaction and collaborative group work, thereby shifting the classroom dynamic toward student engagement and autonomous learning. Continuous professional development and training are essential to equip teachers with contemporary teaching strategies, instructional innovations and effective classroom management techniques that enhance learner-centred learning.

Learning English as a second or foreign language demands considerable cognitive effort, especially in environments with limited exposure to native speakers. Frequent review, repetition, and practice are critical for reinforcing vocabulary, grammar and pronunciation. Teachers should therefore motivate and guide students to engage in regular practice,

providing structured opportunities for revision and reinforcement to strengthen memory retention and promote language automaticity, as emphasised in Automaticity Theory.

The research revealed that students whose first language was not Mende, which is the dominant local language, often experienced stereotyping and marginalisation in classrooms where Mende was used alongside English. Such practices contributed to feelings of isolation, acculturative stress and negative attitudes toward both teachers and the English language. Teachers are thus advised to adopt culturally responsive teaching approaches, ensuring that all learners are treated equitably, that linguistic diversity is respected, and that students' cultural identities are acknowledged and valued. Creating an inclusive classroom environment mitigates social and psychological barriers, fostering greater engagement and motivation in oral English learning.

At a systemic level, it is recommended that the government and educational authorities ensure adequate provision and dissemination of instructional resources to support oral English acquisition. Developing oral fluency requires integrated curricula that combine speaking, listening, reading and writing skills. Schools should allocate additional time for oral practice, both inside and outside the classroom, to facilitate sustained language use. Furthermore, early interventions at the primary school level are essential to establish a strong language foundation, ensuring students are well-prepared for oral English learning in secondary school. Supplementary lessons, language clubs and extracurricular activities focusing on English communication can reinforce classroom learning and provide additional practice opportunities.

To enhance oral English proficiency among senior secondary learners, a multifaceted approach is recommended. Integrating technology into language instruction, such as language learning applications, online pronunciation tools, podcasts and interactive multimedia, can provide learners with authentic English input and strengthen listening, speaking and pronunciation skills. Peer-assisted learning strategies, including collaborative projects, group discussions and speaking tasks, can foster mutual learning while reducing anxiety associated with oral practice. Teachers should also provide timely and constructive formative feedback on pronunciation, grammar and fluency, reinforcing correct usage and addressing errors in real time.

Community and parental engagement is equally crucial; parents, religious leaders and other stakeholders should actively support students' use of English in social contexts, creating safe and encouraging spaces for practice beyond the classroom. Assessment reforms are also recommended, emphasising continuous performance-based evaluations such as presentations,

debates and oral portfolios, which complement standardised testing and provide a more holistic measure of oral proficiency.

Finally, further studies are recommended to investigate the long-term impact of culturally responsive, technology-supported and interactive oral English interventions on learners' linguistic competence, motivation and academic achievement. Such research could explore how societal and cultural factors, L1 influence and audiovisual learning strategies interact to shape oral English development, providing insights for more effective curriculum design and instructional practices.

Acknowledgement

The researchers acknowledge the efforts of Professor Saidu Challay, Madam Madiana Mansa-Gborie, Mr. Joseph Samuka Sandy, Mr Paul F. M Ai-Gbahan Lahai and Mrs. Manty Turay Stevens for their contributions to the success of this work.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Ethical Considerations

Ethical principles were strictly observed throughout the study to protect participants' rights, welfare, and privacy and to ensure the integrity of the research process. Ethical approval was obtained from the Njala University Research Ethics Committee (NUREC) before data collection commenced. Ethical approval was granted by the Njala University Research Ethics Committee (NUREC), Approval No. NUREC/2025/020. All participants received clear information about the purpose of the study and provided informed consent before participating. Participation was entirely voluntary, and respondents were informed of their right to withdraw at any stage without penalty. Anonymity and confidentiality were maintained by removing personal identifiers from all data and securely storing completed questionnaires and interview records. The information collected was used solely for academic purposes, and the findings were reported honestly, objectively, and in accordance with accepted research ethics.

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Lebanese Secondary Students' Perceptions of Remote Assessment in Science and Mathematics

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[Doi:10.19044/esj.2026.v22n23p72](https://doi.org/10.19044/esj.2026.v22n23p72)

Submitted: 17 June 2026

Accepted: 10 August 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Aouad, M. (2026). *Lebanese Secondary Students' Perceptions of Remote Assessment in Science and Mathematics*. European Scientific Journal, ESJ, 22 (23), 72.

<https://doi.org/10.19044/esj.2026.v22n23p72>

Abstract

The rapid shift to remote assessment during educational disruptions has heightened scholarly interest in students' experiences with this format. This study investigates Lebanese secondary students' perceptions of remote assessment in science and mathematics in a crisis-affected context. Specifically, it examines students' perceptions of remote assessment, their level of satisfaction with this assessment format, and their willingness to continue using remote assessment once face-to-face education resumes. Using a quantitative research design, data were collected from 2,717 students in Grades 7–12 across 13 private secondary schools through a structured online questionnaire adapted from established e-assessment perception frameworks. Descriptive statistics were used to examine students' perceptions across six dimensions: affective responses, perceived validity and fairness, practical and technical feasibility, academic integrity and security, satisfaction, and willingness to continue remote assessment. Findings revealed largely neutral affective responses, while technical barriers emerged as the greatest challenge, with the strongest agreement recorded for the perception that poor technical capabilities contribute to late submissions ($M = 2.05$, $SD = 1.21$). Fairness concerns were also prominent, with students agreeing that online exams favor some students over others ($M = 2.47$, $SD = 1.29$). Integrity-related perceptions were mixed, with students acknowledging cheating risks while recognizing that appropriate safeguards can mitigate them. Overall, 49.4% of students reported satisfaction compared with 13.4% expressing dissatisfaction, and 53.8% indicated some willingness to continue remote assessment. The

findings highlight the importance of strengthening infrastructure, improving assessment design for science and mathematics, and addressing fairness and integrity concerns in crisis-affected secondary education contexts.

Keywords: Remote assessment, Student perceptions, Science and mathematics education, Secondary education

Introduction

Since March 2020, educational systems worldwide have undergone significant transformations following the rapid shift to online learning and assessment. This shift initially emerged in response to the COVID-19 pandemic and has continued to shape assessment practices in contexts marked by prolonged disruption (Pozza et al., 2025). In Lebanon, this transition was compounded by multiple crises, including health emergencies, prolonged economic instability, and the October 2024 escalation. These conditions resulted in repeated school closures and increased reliance on remote assessment. Research on education under conditions of conflict in Lebanon highlights how crisis contexts can accelerate the adoption of digital assessment practices despite limited infrastructure and policy readiness (Rabih & Yammine, 2025). Recent evidence also indicates that online learning adoption in Lebanon followed a pattern of rapid expansion followed by decline, reflecting adaptation pressures and sustainability challenges in crisis conditions (Najjar et al., 2025).

Assessment occupies a central role in guiding instruction, measuring student achievement, and supporting learning outcomes. However, the rapid replacement of traditional paper-based examinations with online assessment formats raised concerns regarding assessment design, academic integrity, technological access, fairness, and student preparedness (Pozza et al., 2025; Terblanche et al., 2024). While online assessment offers flexibility and logistical advantages, post-pandemic studies report mixed student responses, with concerns regarding technical reliability, academic integrity, and perceived fairness remaining prominent (Kuluşaklı, 2024; Terblanche et al., 2024). A recent scoping review of 36 global studies confirms that, while remote online exams offer operational efficiency and instant feedback, they raise persistent questions about assessment effectiveness and academic integrity in higher education (Zhuang et al., 2026). Although the existing literature on remote assessment has expanded considerably, most studies have focused on higher education contexts, while research examining secondary students' perceptions remains comparatively limited. Such limitations in the existing evidence base appear particularly significant when remote assessment is implemented as an emergency response rather than as part of a planned digital transformation (Pozza et al., 2025).

Academic integrity represents another major concern associated with remote assessment. Research indicates that teachers and university students frequently perceive online assessment as more vulnerable to cheating and unauthorized collaboration than traditional face-to-face examinations (Jalilzadeh et al., 2024; R  th et al., 2024). Such perceptions may undermine trust in assessment outcomes and influence students' willingness to accept remote assessment practices.

Science and mathematics subjects present additional challenges for remote assessment because evaluation often requires procedural reasoning, symbolic notation, and step-by-step problem solving. Prior research reports increased skepticism regarding the fairness and suitability of online assessment in these disciplines, particularly concerning the demonstration of reasoning and the allocation of partial credit (Iannone et al., 2020; Zhan et al., 2022).

In crisis-affected contexts, remote assessment is further influenced by structural barriers such as limited technological infrastructure, unstable electricity supply, and unequal access to digital devices (UNESCO, 2020). Yet despite Lebanon's increasing reliance on remote assessment, secondary students' perceptions in science and mathematics remain underexplored (Rabih & Yammine, 2025).

This study is grounded in student perception frameworks of e-assessment (Dermo, 2009; Hillier, 2014), which conceptualize perceptions across affective, fairness, technical, and integrity dimensions. Against this background, the present study investigates Lebanese secondary school students' perceptions of remote assessment in science and mathematics. By focusing on a crisis-affected secondary education context, the study contributes large-scale evidence regarding factors influencing students' acceptance of remote assessment practices.

Research Questions

This study addresses the following research questions:

1. What are Lebanese secondary students' perceptions of remote assessment in science and mathematics subjects?
2. What are students' levels of satisfaction with remote assessment in science and mathematics?
3. To what extent are students willing to continue using remote assessment once face-to-face education resumes?

Literature Review

Students' perceptions of remote assessment have become an increasingly important area of educational research following the rapid transition to online learning environments during and after the COVID-19

pandemic. Remote assessment refers to the evaluation of student learning through digital platforms without the physical presence of instructors and students, while e-assessment constitutes the broader technological framework supporting digital assessment practices (Dermo, 2009; García-Peñalvo et al., 2021). Although e-assessment existed prior to the pandemic, its rapid expansion during crisis conditions intensified pedagogical, technical, and ethical challenges associated with remote assessment (Terblanche et al., 2024; Wahas & Syed, 2024). Existing literature suggests that students' experiences with remote assessment are shaped by interconnected affective, technical, pedagogical, and contextual factors.

Effective remote assessment requires intentional redesign through formats such as online quizzes, open-book examinations, project-based tasks, and continuous assessment approaches (Redecker & Johannessen, 2013). However, emergency implementation during crisis conditions may limit adequate preparation to preserve fairness, validity, and alignment with learning objectives, particularly in structured disciplines such as science and mathematics (Pozza et al., 2025).

Research on students' affective responses to remote assessment has reported mixed findings. While some students appreciate the flexibility and reduced logistical pressures associated with online assessment, others report increased anxiety, uncertainty, and lower confidence in assessment reliability and examination conditions (Terblanche et al., 2024; Zhuang et al., 2026). Such affective responses may influence students' satisfaction and willingness to continue remote assessment practices.

Perceived fairness represents one of the most frequently discussed dimensions in remote assessment research. Students frequently express concerns about unequal access to technological resources, inconsistent internet connectivity, and disparate home learning environments, all of which may affect assessment performance (Pozza et al., 2025). Across studies, students consistently associate remote assessment with concerns regarding fairness and technological reliability, although the intensity of these concerns varies according to infrastructure quality, institutional support, and assessment design (Kuluşaklı, 2024; Zhuang et al., 2026). These concerns may become more pronounced in crisis-affected contexts where structural inequalities and technological limitations are more severe. Research conducted in higher education settings has likewise identified digital inequality as an important factor shaping students' perceptions of remote assessment, with concerns about fairness being more pronounced among students experiencing technological constraints (Kuluşaklı, 2024; Terblanche et al., 2024).

Academic integrity remains a central theme in the literature. Online assessments are frequently perceived as more susceptible to cheating, plagiarism, and unauthorized collaboration than traditional face-to-face

assessment environments (Dendir & Maxwell, 2020; Jalilzadeh et al., 2024). However, perceptions regarding integrity remain inconsistent across studies. While some students report reduced trust in online examinations, others recognize that assessment security depends largely on assessment design, question structure, and monitoring strategies (Zhuang et al., 2026). These findings suggest that students' perceptions of integrity are shaped not only by the online format itself but also by the quality and intentionality of assessment implementation. In response to integrity concerns, previous research has emphasized the importance of technological safeguards such as student authentication systems and authorship verification mechanisms to mitigate cheating risks in e-assessment environments (Mellar et al., 2018).

Beyond concerns related to fairness and academic integrity, students' experiences with remote assessment are strongly influenced by technological and contextual factors that affect accessibility and assessment reliability. Technical problems such as unstable internet connections, electricity interruptions, device limitations, and unfamiliarity with digital platforms may negatively affect students' confidence and performance during online examinations (UNESCO, 2020). Recent synthesized evidence further underscores the importance of contextual and technological factors in shaping students' perceptions of remote assessment. Zhuang et al. (2026) reported that students' experiences with remote online exams varied considerably according to infrastructure quality, institutional support, assessment design, and digital preparedness. Technological barriers and concerns regarding assessment reliability appeared particularly prominent in contexts characterized by unequal technological access and emergency implementation conditions.

Science and mathematics assessments present additional challenges within remote environments because these disciplines frequently require procedural reasoning, symbolic notation, calculations, and step-by-step problem-solving processes. The procedural and symbolic nature of science and mathematics assessment may intensify students' concerns regarding fairness and accuracy in remote assessment environments, particularly when online formats limit opportunities to demonstrate intermediate reasoning steps or receive partial credit for problem-solving processes. Previous research reports increased skepticism regarding the suitability and fairness of online assessment in mathematics and science disciplines, especially in relation to demonstrating reasoning processes and validating authentic student performance (Iannone et al., 2020; Zhan et al., 2022).

In crisis-affected educational contexts, remote assessment is further complicated by structural and socioeconomic challenges. Research conducted in conflict-affected or economically unstable settings indicates that unequal technological access, infrastructure instability, and disruptions in educational continuity significantly influence students' learning experiences and

perceptions of assessment fairness (Rabih & Yammine, 2025). In Lebanon specifically, prolonged economic and social crises have intensified digital divide challenges within secondary education, affecting students' access to stable internet, electricity, and digital learning resources (Najjar et al., 2025). Despite the increasing reliance on remote assessment in Lebanese schools, empirical research examining secondary students' perceptions of remote assessment in science and mathematics remains limited.

Students' perceptions are widely recognized as a central determinant of assessment effectiveness and acceptance. Frameworks such as the Student Perceptions of E-Assessment Questionnaire (SPEAQ) conceptualize students' perceptions across affective responses, fairness, technical feasibility, and integrity dimensions (Alsadoon, 2017; Hillier, 2014). These dimensions are particularly relevant in crisis-affected contexts where infrastructural instability and unequal technological access may intensify concerns regarding accessibility, reliability, and fairness (UNESCO, 2020). Despite growing evidence on remote assessment perceptions in higher education, secondary education contexts — particularly in crisis-affected settings — remain underrepresented in the literature.

Methodology

This study employed a quantitative research design to investigate Lebanese secondary school students' perceptions of remote assessment in science and mathematics during periods of educational disruption. A convenience sampling approach was used, with schools selected based on accessibility and willingness to participate under emergency schooling conditions. The sample consisted of 2,717 students enrolled in Grades 7 to 12 across 13 private secondary schools located in different Lebanese regions. These schools had implemented remote teaching and assessment during repeated school closures.

Data were collected using a structured questionnaire adapted from established e-assessment perception frameworks (Alsadoon, 2017; Hillier, 2014). The questionnaire was administered online via Google Forms in English and French, reflecting Lebanon's bilingual education system. Prior to large-scale distribution, the instrument was piloted with a small group of students to ensure clarity and content validity. Participation was voluntary, anonymous, and confidential, and the study adhered to established ethical principles for education research. The institutional context did not require formal ethical board approval; however, all ethical guidelines for educational research were strictly observed.

The questionnaire included two sections: demographic information and students' perceptions of remote assessment across four dimensions — affective responses, perceived validity and fairness, practical and technical

feasibility, and academic integrity and security. A five-point Likert-type response scale was employed, ranging from 1 (strongly agree) to 5 (strongly disagree), consistent with the scaling used in the original SPEAQ instrument (Alsadoon, 2017; Hillier, 2014) and aligned with established practice in e-assessment perception research, thereby ensuring comparability with prior studies. Perceived validity and fairness are defined here as students' subjective views on the appropriateness of the format for their discipline and the equity of assessment conditions, rather than as psychometric measures of test validity. Two additional items examined students' satisfaction with remote assessment and their willingness to continue remote assessment after the resumption of face-to-face education. Data were analyzed using IBM SPSS Statistics. Descriptive statistics were computed to address the research questions, and Cronbach's alpha coefficients were calculated to assess internal consistency. Ninety-five percent confidence intervals were computed for all item means to provide additional precision in interpreting the descriptive findings.

Results

Overview of the sample

The sample (N= 2,717) was relatively balanced by gender (male = 1,315, female = 1,402). As shown in Table 1, the largest proportion of participants was from Grade 10 (20.6%), followed by Grade 7 (19.4%) and Grade 9 (18.9%). Students in Grades 11 (13.9%) and Grade 12 (9.8%) represented smaller proportions of the sample. Female students slightly outnumbered male students across most grade levels.

Table 1: Demographic Characteristics of Participants

Grade Level	Male	Female	Total	Percentage
Grade 7	245	281	526	19.4%
Grade 8	227	249	476	17.5%
Grade 9	238	275	513	18.9%
Grade 10	288	271	559	20.6%
Grade 11	189	189	378	13.9%
Grade 12	128	137	265	9.8%
Total	1,315	1,402	2,717	100%

Results for Research Question 1: Students' Perceptions of Remote Assessment

Internal consistency analysis showed acceptable reliability for the affective responses ($\alpha = .752$), practical and technical feasibility ($\alpha = .652$), and academic integrity and security ($\alpha = .781$) dimensions. The perceived validity and fairness dimension yielded a low reliability coefficient ($\alpha = .419$). Consequently, findings related to this dimension were interpreted cautiously at the item level rather than as a unified scale.

To address Research Question 1, descriptive statistics were computed for items measuring students' affective responses, perceived validity and fairness, practical and technical feasibility, academic integrity and security, and willingness to continue remote assessment. Table 2 presents the means and standard deviations for all items. Lower means indicate stronger agreement because responses ranged from 1 (strongly agree) to 5 (strongly disagree). Items were not reverse-coded. To facilitate interpretation, mean scores were classified as indicative of agreement (1.00–2.49), neutral to moderate responses (2.50–3.49), or disagreement (3.50–5.00). Items were grouped into themes following Dermo's (2009) dimensions of students' perceptions of e-assessment and the adoption construct proposed by Hillier & Fluck (2013) adapted to reflect the emergency remote assessment context. Additional descriptive statistics, including 95% confidence intervals, medians, and interquartile ranges for all questionnaire items, are provided in Appendices A and B.

Table 2: Students' Perceptions of Remote Assessment

Statements	Mean	SD
<i>Affective Responses</i>		
I feel more comfortable if the exam was on paper, not online.	3.11	1.45
Using a computer for an exam is more stressful for students than a handwritten paper exam.	3.13	1.52
Students might be at a disadvantage when undertaking online exams.	2.95	1.31
<i>Perceived validity and fairness</i>		
Online exams are appropriate for my discipline/subject (sciences, mathematics...).	3.07	1.25
Online exams favor some students more than others.	2.47	1.29
Paper-based exams are fairer than online exams.	2.76	1.42
<i>Practical and Technical Feasibility</i>		
Technical problems make doing exams via computer impractical.	2.38	1.21
Many students do not submit assessments on time due to their poor technical capabilities.	2.05	1.21
I had technical problems in sending assignments/tests etc.	2.48	1.39
<i>Academic Integrity and Security</i>		
It is easier to cheat in online exams than with paper-based exams.	2.60	1.40
Many students copy each other's assessments.	2.76	1.16
There is a higher risk of students cheating in remote assessments.	2.92	1.31
Online exams are just as secure as paper-based exams.	2.56	1.32
Online exams allow students to cheat from each other.	3.16	1.33
Online exams allow students to cheat from online sources.	2.82	1.33
Many students always ask about postponing the submission of exams for various excuses.	2.82	1.31
Many students submit assessments that are copied from websites without modifying or paraphrasing.	3.20	1.21
<i>Willingness to Continue</i>		
Would you be interested in continuing remote assessment once face-to-face education resumes?	2.88	1.46

Note. 95% confidence intervals for all items are reported in Appendix A. Additional descriptive statistics (Median, Q1, Q3) are reported in Appendix B.

Regarding affective factors, students' responses were largely neutral, indicating neither strong comfort nor strong discomfort with remote assessment formats. Students did not demonstrate a strong preference for paper-based examinations over online formats ($M = 3.11$), reflecting a largely neutral affective stance toward the assessment medium. Similarly, the statement that computer-based exams are more stressful than handwritten exams ($M = 3.13$) reflected near-neutral responses with a slight tendency toward disagreement. In contrast, the statement "Students might be at a disadvantage when undertaking online exams" averaged $M = 2.95$, representing the strongest concern among the affective items. While stress related to technology was not strongly reported, concern regarding potential disadvantage clearly emerged. This pattern mirrors Dermo's (2009) findings, where affective responses were slightly positive and stress was not perceived as substantially increased in e-assessment contexts.

With respect to perceived validity and fairness, students showed greater concern about fairness between students than about the suitability of online exams for science and mathematics subjects. They agreed that online exams favor some students more than others ($M = 2.47$) and indicated a moderate tendency to perceive paper-based exams as fairer than online exams ($M = 2.76$). Additionally, a slight tendency toward disagreement was noted regarding the appropriateness of online exams for science and mathematics subjects ($M = 3.07$). This mild skepticism aligns with prior findings suggesting that procedural disciplines such as mathematics and science present particular assessment difficulties in online environments, especially regarding demonstration of reasoning and allocation of partial credit (Iannone et al., 2020; Zhan et al., 2022). Similar to Dermo (2009), fairness concerns emerged as a central issue, suggesting that equity perceptions remain an important determinant of remote assessment acceptance across contexts.

Technical challenges emerged as the primary concern across all dimensions. The strongest agreement in the entire survey was recorded for the perception that poor technical capabilities contribute to late submissions ($M = 2.05$), followed by agreement that technical difficulties make online exams impractical ($M = 2.38$). Personal difficulties in submitting assessments were also frequently reported ($M = 2.48$).

Concerns about academic integrity and security were evident; however, students' responses were not uniform and revealed a balanced, sometimes contradictory pattern across items. Students demonstrated a moderate tendency toward agreement that online exams can be as secure as paper-based exams ($M = 2.56$), suggesting they do not view misconduct as unavoidable. At the same time, students also agreed that cheating is easier in online exams than in paper-based exams ($M = 2.60$) and that copying occurs ($M = 2.76$). A comparable tendency toward agreement emerged regarding the

perception that the overall risk of cheating is higher in remote assessments ($M = 2.92$). However, students showed a slight tendency toward disagreement that online exams primarily allow students to cheat from each other ($M = 3.16$) or frequently submit plagiarized work from websites ($M = 3.20$). This pattern reflects recognition of cheating risks without perceiving them as excessive, uncontrollable, or fundamentally different from traditional assessment environments. The mixed responses may reflect acknowledgment that both online and paper-based assessments have vulnerabilities, or uncertainty regarding the effectiveness of security measures in remote contexts.

Willingness to continue remote assessment after the resumption of face-to-face education yielded $M = 2.88$, indicating cautious acceptance rather than strong endorsement or rejection. This finding is further clarified in Research Question 3 through categorical response analysis.

Overall, the findings revealed a pattern characterized by neutral affective reactions, moderate equity concerns, strong technical barriers, mixed security perceptions, and cautious acceptance of remote assessment.

To further illustrate the distribution of responses, Figure 1 presents boxplots for four representative questionnaire items selected from the technical feasibility, fairness, and academic integrity dimensions.

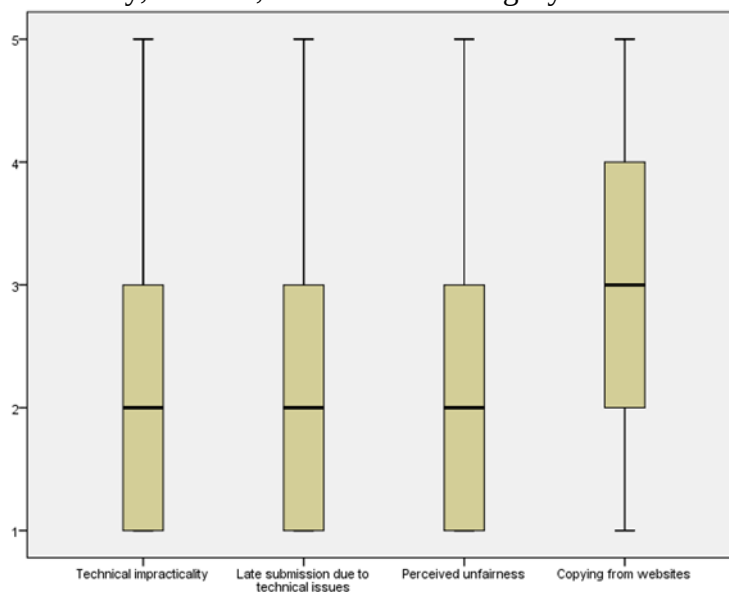


Figure 1: Boxplots illustrating the distribution of responses for four representative questionnaire items

Figure 1 complements the descriptive statistics presented in Table 2 by illustrating the median, interquartile range, and variability of responses for representative questionnaire items. As shown in Figure 1, the items related to technical feasibility ("Technical problems make doing exams via computer

impractical" and "Many students do not submit assessments on time due to their poor technical capabilities") and perceived fairness ("Online exams favour some students more than others") had a median response of 2 (Agree), with the middle 50% of responses ranging from 1 to 3, indicating that a considerable proportion of students agreed with these statements. In contrast, the item "Many students submit assessments that are copied from websites without modifying or paraphrasing" had a median response of 3 (Neutral) and an interquartile range of 2 to 4, reflecting greater variability in students' perceptions regarding academic integrity. These graphical findings are consistent with the descriptive statistics presented in Table 2.

Results for Research Question 2: Students' Satisfaction with Remote Assessment

To address Research Question 2, descriptive statistics were computed to examine students' satisfaction with remote assessment. Table 3 presents the distribution of responses.

Table 3: Students' Level of Satisfaction with Remote Assessment

	Frequency	Percent (%)
Very Satisfied	433	16.0
Somewhat Satisfied	908	33.4
Neither satisfied nor dissatisfied	1,010	37.1
Somewhat Dissatisfied	202	7.4
Very Dissatisfied	164	6.0
Total	2,717	100

Unlike the largely neutral perceptions observed across the dimensions in Table 2, responses regarding satisfaction revealed a more positive distribution. The most frequent response was "Neither satisfied nor dissatisfied" (37.1%), indicating substantial neutrality. However, satisfaction clearly exceeded dissatisfaction: 49.4% of students reported some level of satisfaction compared to 13.4% expressing dissatisfaction (approximately 4:1 ratio). Specifically, 16% were very satisfied and 33.4% somewhat satisfied, whereas 7.4% were somewhat dissatisfied and 6% very dissatisfied. These findings suggest that while strong enthusiasm for remote assessment was limited, most who held a definite opinion viewed their experience positively rather than negatively. The large neutral proportion (37.1%) may reflect mixed experiences, uncertainty about comparing online versus traditional assessment, or cautious evaluation during an ongoing transition.

Overall, satisfaction can be characterized as moderately positive but tempered by substantial reservation. Remote assessment appears to have been perceived as an acceptable emergency solution rather than a preferred long-term alternative to traditional face-to-face evaluation. This pattern of moderate satisfaction combined with high neutrality is consistent with neutral-to-

cautious perceptions observed across dimensions in Table 2, particularly the neutral affective responses and concerns about technical feasibility and fairness.

Results for Research Question 3: Willingness to Continue Remote Assessment

To address Research Question 3, students were asked whether they would be interested in continuing remote assessment once face-to-face education resumes. Table 4 presents the distribution of categorical responses.

Table 4: Students' Willingness to Continue Remote Assessment

	Frequency	Percent (%)
No, definitely not	1,256	46.2
Yes, definitely	465	17.1
Yes, if I have the choice	996	36.7
Total	2,717	100.0

Students' willingness to continue remote assessment revealed a divided pattern rather than consensus. Nearly half of students (46.2%) indicated they would "definitely not" be interested in continuing remote assessment, representing clear rejection. However, a slight majority (53.8%) showed some level of openness toward continuation. Within this group, most expressed conditional rather than unconditional acceptance: 36.7% indicated willingness "if I have the choice," while only 17.1% reported definite interest.

This pattern reflects several important considerations regarding students' conditional acceptance of remote assessment. First, while remote assessment was not rejected in principle by most students, acceptance is contingent upon the fulfillment of specific conditions. Second, the large proportion favoring conditional acceptance (36.7%) suggests that students require agency and flexibility rather than mandatory imposition of remote assessment. Third, the small proportion expressing definite interest (17.1%) indicates that remote assessment, in its current implementation, is not perceived as superior to traditional formats by most students. When combined with the Likert-scale willingness item from Table 2 ($M = 2.88$, indicating cautious acceptance), these findings suggest that students view remote assessment as a conditional practice whose continued use requires addressing current concerns. The convergence between the Likert measure (indicating cautious acceptance) and the categorical measure (53.8% showing some openness) reinforces the interpretation that acceptance exists but is tempered by significant reservations regarding infrastructure, fairness, and design quality. This divided willingness aligns with Table 2 findings, where technical and fairness concerns moderated acceptance despite moderate satisfaction.

Discussion

The findings of this study indicate that Lebanese secondary students' perceptions of remote assessment in science and mathematics were characterized by largely neutral affective responses, substantial technical concerns, moderate fairness reservations, mixed integrity perceptions, and cautious acceptance of continued remote assessment. These findings are consistent with international research suggesting that emergency implementation of remote assessment often generates concerns regarding infrastructure, fairness, and assessment reliability (Pozza et al., 2025; Zhuang et al., 2026).

Concerns about fairness and equity corroborate research indicating that students perceive traditional examinations as more equitable and less susceptible to dishonesty (Pozza et al., 2025). Students' agreement that online exams favor some students over others reflects awareness of the digital divide and differential access to reliable technology, stable internet connectivity, and conducive testing environments. This pattern likely reflects structural disparities in access to reliable technology and conducive learning environments – disparities characteristic of crisis-affected contexts like Lebanon, where electricity shortages, internet instability, and unequal device access create uneven conditions for remote assessment (UNESCO, 2020).

Practical barriers emerged as the most influential factor shaping students' perceptions of remote assessment in low-resource environments. Strong agreement regarding internet instability, submission difficulties, and limited technical capabilities highlights the extent to which infrastructural limitations affect assessment feasibility in crisis-affected educational settings. These findings indicate that infrastructural accessibility represents a more immediate concern for students than pedagogical or security-related issues.

An additional factor that may have influenced students' perceptions is their familiarity with the digital platforms used for remote assessment. Students with greater experience using online assessment systems may encounter fewer technical difficulties and demonstrate greater confidence in remote examinations than students with limited digital experience. Because this variable was not measured in the present study, its influence could not be examined and should be considered in future research.

Students' perceptions regarding academic integrity and security revealed a nuanced and sometimes contradictory pattern. Although students acknowledged that cheating and copying may occur more easily in online examinations, they did not perceive academic dishonesty as excessive or unavoidable. At the same time, many students agreed that remote assessments can achieve security levels comparable to traditional examinations when appropriate safeguards are implemented. These findings suggest that students distinguish between the existence of integrity risks and the effectiveness of

assessment design in minimizing those risks. Similar findings were reported in previous research indicating that students' perceptions of integrity may be influenced not only by the online format itself but also by monitoring strategies, question structure, and institutional safeguards (Jalilzadeh et al., 2024; Zhuang et al., 2026).

Moderate satisfaction coupled with divided willingness to continue remote assessment aligns with findings that students and educators viewed remote assessment primarily as an emergency solution, with concerns about fairness and integrity limiting its acceptance for routine use (Pozza et al., 2025). With satisfaction exceeding dissatisfaction and a majority showing conditional openness, results suggest that remote assessment is not fundamentally rejected but requires substantial improvement to gain broader acceptance. The large conditional acceptance group indicates that students are willing to engage with remote assessment if given choice and control, but are resistant to its mandatory imposition in its current form.

Overall, the findings suggest that effective implementation of remote assessment in crisis-affected secondary education contexts requires more than digital delivery alone. Strengthening technological infrastructure, improving assessment design for procedural disciplines such as science and mathematics, and addressing fairness and accessibility concerns are therefore essential conditions for broadening students' acceptance of remote assessment. These findings highlight the need for assessment strategies that are adaptable to crisis conditions while remaining attentive to fairness, accessibility, and students' confidence in assessment processes.

Conclusions

This study examined Lebanese secondary students' perceptions of remote assessment in science and mathematics within a crisis-affected educational context. By analyzing affective responses, perceived validity and fairness, practical and technical feasibility, academic integrity and security, and willingness to continue remote assessment, the study provides a comprehensive understanding of students' assessment experiences during periods of disruption.

The findings reveal a nuanced pattern of perceptions characterized by cautious evaluation rather than outright rejection. While affective responses regarding comfort and stress were largely neutral, concerns regarding potential disadvantage remained evident. Technical and infrastructural limitations emerged as the dominant concern, highlighting the significant influence of internet instability, electricity interruptions, and technological accessibility on students' assessment experiences. Fairness concerns were also prominent, particularly regarding unequal assessment conditions and the suitability of remote assessment for science and mathematics subjects. Academic integrity

perceptions were mixed, with students acknowledging cheating risks while simultaneously recognizing that remote assessments can achieve acceptable levels of security when appropriate safeguards are implemented. Although satisfaction with remote assessment was moderately positive overall, substantial neutrality persisted. Students' willingness to continue remote assessment after the return to face-to-face education remained divided, with many expressing conditional rather than unconditional acceptance. The findings highlight that students do not fundamentally reject remote assessment but view its continued use as dependent on improvements in infrastructure, fairness, reliability, and assessment design quality.

These findings carry important implications for educational policy and practice in crisis-affected contexts. Ultimately, improving remote assessment in crisis-affected secondary education requires stronger technological infrastructure, discipline-specific assessment design, and measures that promote fairness and academic integrity. The study further underscores the need for flexible and context-sensitive assessment approaches capable of balancing educational continuity with equity, reliability, and student trust.

Students' familiarity with online assessment platforms may also have influenced their perceptions. However, the present study did not directly measure students' prior experience or digital competence. Future research could expand the scope of investigation by including public schools, incorporating qualitative perspectives from students and teachers, and examining longitudinal changes in perceptions as remote assessment practices continue to evolve. These findings contribute to the growing evidence on remote assessment in crisis-affected secondary education and provide practical guidance for designing more equitable and resilient assessment systems.

Conflict of Interest: The author reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The author did not obtain any funding for this research.

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Appendix A: Ninety-five Percent Confidence Intervals for the Questionnaire Items

Statements	Mean	SD	95% CI
<i>Affective Responses</i>			
I feel more comfortable if the exam was on paper, not online.	3.11	1.45	3.06-3.17
Using a computer for an exam is more stressful for students than a handwritten paper exam.	3.13	1.52	3.07-3.18
Students might be at a disadvantage when undertaking online exams.	2.95	1.31	2.90-3.00
<i>Perceived validity and fairness</i>			
Online exams are appropriate for my discipline/subject (sciences, mathematics...).	3.07	1.25	3.02-3.11
Online exams favor some students more than others.	2.47	1.29	2.42-2.51
Paper-based exams are fairer than online exams.	2.76	1.42	2.70-2.81
<i>Practical and Technical Feasibility</i>			
Technical problems make doing exams via computer impractical.	2.38	1.21	2.33-2.42
Many students do not submit assessments on time due to their poor technical capabilities.	2.05	1.21	2.00-2.09
I had technical problems in sending assignments/tests etc.	2.48	1.39	2.43-2.54
<i>Academic Integrity and Security</i>			
It is easier to cheat in online exams than with paper-based exams.	2.60	1.40	2.55-2.65
Many students copy each other's assessments.	2.76	1.16	2.72-2.80
There is a higher risk of students cheating in remote assessments.	2.92	1.31	2.87-2.97
Online exams are just as secure as paper-based exams.	2.56	1.32	2.51-2.61
Online exams allow students to cheat from each other.	3.16	1.33	3.11-3.21
Online exams allow students to cheat from online sources.	2.82	1.33	2.77-2.87
Many students always ask about postponing the submission of exams for various excuses.	2.82	1.31	2.78-2.87
Many students submit assessments that are copied from websites without modifying or paraphrasing.	3.20	1.21	3.16-3.25

Appendix B: Additional Descriptive Statistics for the Questionnaire Items

Statements	Median	25th Percentile (Q1)	75th Percentile (Q3)
<i>Affective Responses</i>			
I feel more comfortable if the exam was on paper, not online.	3	2	5
Using a computer for an exam is more stressful for students than a handwritten paper exam.	3	2	5
Students might be at a disadvantage when undertaking online exams.	3	2	4
<i>Perceived validity and fairness</i>			
Online exams are appropriate for my discipline/subject (sciences, mathematics...).	3	2	4
Online exams favor some students more than others.	2	1	3
Paper-based exams are fairer than online exams.	3	1	4
<i>Practical and Technical Feasibility</i>			
Technical problems make doing exams via computer impractical.	2	1	3
Many students do not submit assessments on time due to their poor technical capabilities.	2	1	3
I had technical problems in sending assignments/tests etc.	2	1	3
<i>Academic Integrity and Security</i>			
It is easier to cheat in online exams than with paper-based exams.	3	1	4
Many students copy each other's assessments.	3	2	3
There is a higher risk of students cheating in remote assessments.	3	2	4
Online exams are just as secure as paper-based exams.	2	1	3
Online exams allow students to cheat from each other.	3	2	4
Online exams allow students to cheat from online sources.	3	2	4
Many students always ask about postponing the submission of exams for various excuses.	3	2	4
Many students submit assessments that are copied from websites without modifying or paraphrasing.	3	2	4

Field-Based Environmental Vigilance Profiles Associated with Rural Activities in the Pool Department, Republic of the Congo

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[Doi:10.19044/esj.2026.v22n23p91](https://doi.org/10.19044/esj.2026.v22n23p91)

Submitted: 12 June 2026

Accepted: 28 July 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Makaya, H.A., & Ifo, S.A. (2026). *Field-Based Environmental Vigilance Profiles Associated with Rural Activities in the Pool Department, Republic of the Congo*. European Scientific Journal, ESJ, 22 (23), 91. <https://doi.org/10.19044/esj.2026.v22n23p91>

Abstract

Local environmental planning requires diagnostic tools capable of identifying areas and activities that may place pressure on soils, fragile environments and water resources before these pressures become measurable deforestation or forest degradation. This study characterises environmental vigilance profiles associated with rural activities in seven localities of the Pool Department, Republic of the Congo, using 178 completed field-observation records collected in 2024 by the doctoral researcher and subsequently checked and verified by Ifo Suspense Averti. The analysis is restricted to environmental and territorial records describing activity types, localities, proximity to rivers or water points, field-recorded indicators affecting fragile environments and water bodies, soil instability and potential conflicts. No respondent-level social or perceived-risk data and no direct biophysical measurements of erosion, soil compaction or water quality were used. Agriculture dominates most localities, whilst Mindouli displays a mixed agro-pastoral profile, Koubola a distinctive pastoral profile, and Yalavounga, Yangui and Linzolo very high hydrological sensitivity. Field-recorded indicators affecting fragile environments and water resources are especially frequent in Missafou, Yalavounga and Linzolo. The paper proposes a qualitative environmental vigilance typology distinguishing multi-activity hydrological-risk, agricultural-riparian/hydrological, mixed agro-pastoral and pastoral profiles. This screening typology offers a practical basis for

prioritising local monitoring, riparian protection and agroecological land-use planning, but it should not be interpreted as a measured probability of environmental damage.

Keywords: Environmental vigilance; rural activities; water resources; agriculture; livestock; Pool Department; Republic of the Congo

Introduction

Rural landscapes in Central and West Africa are increasingly affected by agricultural expansion, livestock keeping, domestic wood use, growing accessibility and competition for land and water resources. These processes do not only result in forest loss; they also generate localised environmental risks, including soil disturbance, riverbank degradation, vegetation fragmentation and pressure on riparian ecosystems. Long-term land-cover studies in West Africa have shown that human-dominated land-cover classes, particularly croplands and settlements, have expanded at the expense of natural vegetation (Vittekk et al., 2014; Barnieh et al., 2020; Herrmann et al., 2020).

The Pool Department, located in southern Republic of the Congo, is particularly relevant for such an analysis. It is characterised by a forest-savannah mosaic, gallery forests, secondary forest patches, agricultural lands and hydrological networks that support rural livelihoods. Previous botanical and ecological studies in the Pool and neighbouring Congolese landscapes have shown the importance of secondary forests, degraded forests, savannahs and riparian formations for biodiversity, soil-water regulation and ecosystem functioning (Kimpouni et al., 2009; Ndzai et al., 2022; Gomat et al., 2024).

At the Congo Basin scale, small-scale agriculture, villages, roads, fuelwood demand and other components of the rural complex remain central to forest disturbance, especially in fragmented and secondary forests (Mayaux et al., 2013; Ernst et al., 2013; Tegegne et al., 2016; Tyukavina et al., 2018; Shapiro et al., 2023).

The problem addressed in this paper differs from an analysis of perceived drivers of deforestation. The empirical question is: which locality-level environmental vigilance profiles emerge from the observed distribution of rural activities, hydrological proximity and recorded indicators affecting fragile environments and water resources? This diagnostic perspective is important because environmental pressures are not distributed uniformly across space. Evidence from West African floodplain and wetland studies and from Congo Basin landscape assessments shows that agricultural expansion, settlement growth and livestock pressure may affect vegetation, soils and water resources differently according to local ecological settings (Nsor et al., 2019; Barnieh et al., 2020; Shapiro et al., 2023).

The general objective is to identify and compare environmental vigilance profiles associated with rural activities in surveyed localities of the Pool Department. The specific objectives are to: (i) describe the frequency distribution of recorded rural activities by locality; (ii) assess observed hydrological proximity; (iii) identify and compare locality-specific profiles of recorded indicators affecting fragile environments and water resources; and (iv) propose monitoring and rural land-use planning priorities adapted to each locality.

This article draws on the environmental and territorial component of the field database assembled for the doctoral thesis of Makaya Helischa Audrey, entitled “Suivi de la dynamique des écosystèmes forestiers du Département du Pool de 1990 à 2020”. The present analysis is distinct from the thesis component based on community perceptions of forest decline.

Materials and methods

Study area

The study was conducted in localities of the Pool Department in southern Republic of the Congo: Missafou, Linzolo, Mindouli, Koubola, Yalavounga, Yangui and Niangui. The department is a rural and peri-urban landscape where agricultural land, savannahs, gallery forests, secondary forest patches and hydrological networks interact. The physical geography of the Pool is marked by plateaux, hills and plains, with hydrographic systems that support rural livelihoods and create ecologically sensitive riparian environments (Vennetier, 1966; Monographie du departement du Pool, 2011). Figure 1 presents the general location of the study area. The database did not include a geospatial land-use layer permitting calculation of the relative area occupied by agriculture, settlements or other rural land uses in each locality. Consequently, the study does not estimate area-weighted exposure or the proportional impact of the recorded indicators on rural livelihoods.

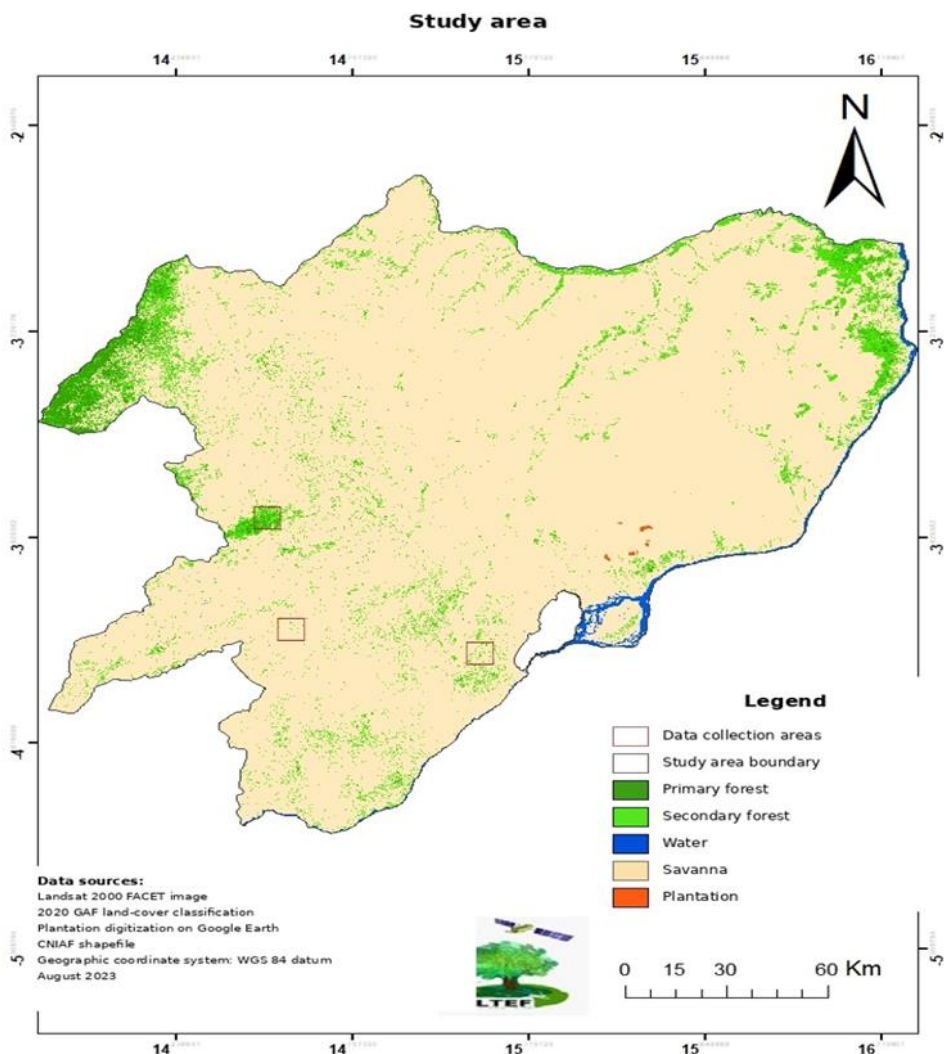


Figure 1: General location of the study area in the Pool Department

Data and analytical scope

The data were drawn from 178 completed environmental and territorial observation records collected in 2024 by Makaya Helischa Audrey during her doctoral fieldwork. The same structured field-screening form was used across the seven localities. All records were subsequently checked and verified by Ifo Suspense Averti before analysis. The retained variables describe localities, activity types, proximity to rivers or water points, field-recorded indicators affecting fragile environments and rivers or lakes, soil or geological instability, and observation-level flags for potential conflicts or inequalities. Variables relating to sub-projects and direct beneficiaries were excluded to

keep the analysis focused on environmental and territorial screening indicators.

The analytical unit was a completed environmental observation record, not an individual respondent. A record was retained as completed when it passed the verification step, contained an identifiable locality and provided usable entries for the environmental variables required for the relevant analysis. The structured form recorded locality, activity type, proximity to water and the presence or absence of predefined environmental indicators. Each indicator was coded as present (1) or absent (0) only when the corresponding field had been explicitly completed; missing entries were treated as unavailable rather than recoded as zero. Consequently, the tables present frequency counts of valid observation records or recorded occurrences, and not responses from individual residents. The hydrological-proximity variable is an observed screening field rather than a direct measurement of discharge, water quality, bank erosion or flood probability.

This article does not use the community-perception database associated with the thesis survey. This methodological choice maintains a distinct analytical angle: the paper examines environmental vigilance profiles derived from field-screening records rather than perceived causes of forest decline. No respondent-level social dataset was analysed; the potentially social variables available in the source database were outside the analytical scope of this paper. The analysis is descriptive and does not claim statistical causality or a validated quantitative risk assessment.

The bibliographic framework of this article was purposefully strengthened with studies from West Africa and Central Africa that address land-cover transitions, riparian vegetation change, soil-water dynamics, savannah-forest mosaics and environmental monitoring. This choice reinforces the environmental-diagnostic orientation of the paper and distinguishes it from the companion manuscript centred on community perceptions and perceived drivers of deforestation. This comparative framing is consistent with land-cover and ecoregional assessments that document agricultural expansion, vegetation transitions and rural landscape change in West Africa (Tappan et al., 2004; CILSS, 2016; Tappan et al., 2016; Cotillon & Mathis, 2017).

Data processing

Locality names were harmonised to group spelling and administrative variants. Activities were classified into five categories: agriculture, livestock, trade, fish farming and other activities. After collection, the records were screened for completeness and internal consistency, category labels were harmonised, and frequency tables were recalculated following verification by Ifo Suspense Averti. Because one doctoral researcher collected the field data,

no inter-observer reliability statistic was applicable; consistency was addressed through the use of a single structured form and supervisory verification. Activity data and field-recorded environmental indicators were summarised as absolute frequency counts; hydrological proximity was expressed as the percentage of valid observation records indicating the presence of a river, stream or water point. The analysis led to a qualitative environmental vigilance typology based on combinations of activity structure, hydrological proximity, recorded indicators and data completeness.

Potential vigilance levels were assigned through an explicit rule-based qualitative screening matrix. A very-high level was assigned when hydrological proximity reached at least 90% of valid records, or when a diversified activity structure coincided with the largest total of field-recorded environmental indicators. A moderate-to-high level was assigned when agriculture and livestock were nearly balanced and hydrological proximity ranged from 65.0% to 74.9%. A moderate level denoted a livestock-dominant or otherwise localised pressure profile with hydrological proximity below 65% and fewer recorded indicators. Niangui was classified as indeterminate because only two valid records were available. Table 5 reports the decision rule for each profile family. These levels are relative screening priorities; they are not additive risk scores, probabilities, effect sizes or results of physical risk measurement.

Results

Distribution of observed activities

Table 1: Frequency counts of recorded activity mentions by locality

Locality	Agriculture (n)	Livestock (n)	Trade (n)	Fish farming (n)	Other (n)	Environmental profile
Missafou (Mindouli)	35	15	11	8	5	Diversified, agriculture-dominated
Linzolo (Goma tse-tse)	24	6	10	0	3	Agricultural-commercial and hydrological
Mindouli	11	10	3	0	2	Mixed farming-livestock
Koubola (Goma tse-tse)	7	9	4	0	1	Pastoral pressure on soils
Yalavounga (Kinkala)	12	2	2	0	1	Sensitive agricultural-riparian
Yangui (Kinkala)	10	5	0	0	0	Agricultural with strong hydrological proximity
Niangui (Kinkala)	2	0	0	0	0	Agricultural, limited data
Total activity mentions	101	47	30	8	12	198 mentions

Note: Counts are activity mentions in valid field observation records, not respondent totals; one record could include multiple activities.

Table 1 and Figure 2 show that the distribution of activities is dominated by agriculture in most localities. Missafou is the most diversified, combining agriculture, livestock, trade and fish farming. Linzolo combines agriculture and trade, whereas Mindouli shows a mixed agriculture-livestock profile. Koubola differs from the other localities because livestock is relatively dominant, which calls for a specific interpretation of risks associated with grazing routes, soil trampling and watering points.

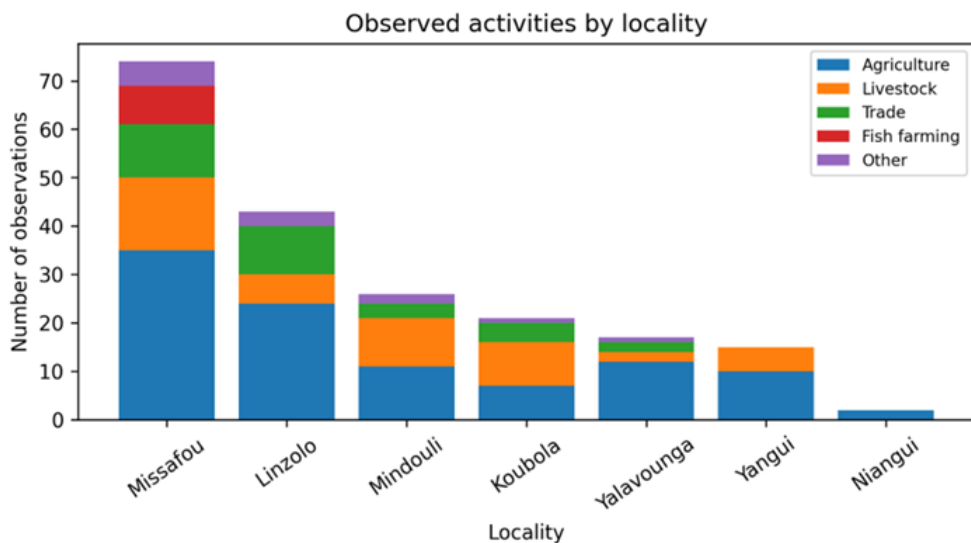


Figure 2: Distribution of observed activities by locality in the environmental database

Hydrological sensitivity of localities

Table 2: Frequency and percentage of field records indicating hydrological proximity

Locality	Records close to water (n)	Valid records indicating proximity (%)	Sensitivity level
Missafou (Mindouli)	49	66.2	Moderate to high
Linzolo (Goma tse-tse)	30	90.9	Very high
Mindouli	14	70.0	Moderate to high
Koubola (Goma tse-tse)	11	64.7	Moderate
Yalavounga (Kinkala)	17	100.0	Very high
Yangui (Kinkala)	14	93.3	Very high
Nianguai (Kinkala)	2	100.0	Very high, to be interpreted cautiously
All localities (descriptive total)	137	77.0 (137/178)	Not a departmental risk score

Note: Percentages use records with a completed hydrological-proximity field. The pooled value of 77.0% is descriptive of the 178 records and is not an area-weighted risk estimate for the Pool Department.

Table 2 and Figure 3 show that Yalavounga, Yangui, Niangui and Linzolo have the highest proportions of observations close to water. Niangui should be interpreted cautiously because the number of observations is low. Hydrological proximity is a central vigilance indicator because rural activities near watercourses may affect riverbanks, gallery forests, water quality and soil stability.

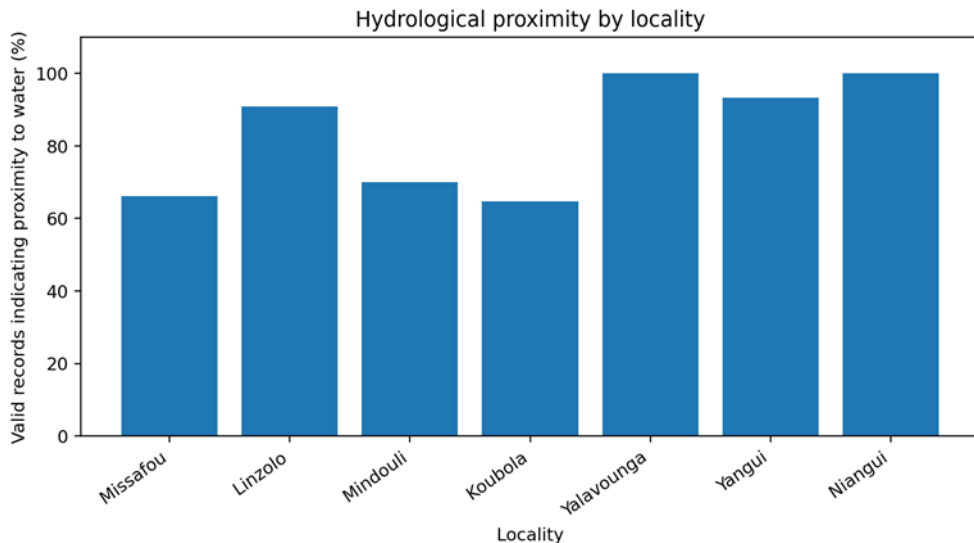


Figure 3: Proportion of observations indicating proximity to a river or water point

Recorded risk indicators for fragile environments and water resources

Table 3: Frequency counts of recorded environmental indicators by locality

Locality	Fragile areas (n)	Rivers/lakes (n)	Soil instability (n)	Conflict flags (n)
Missafou (Mindouli)	17	21	0	3
Linzolo (Goma tse-tse)	10	6	1	1
Mindouli	2	6	1	1
Koubola (Goma tse-tse)	5	1	1	1
Yalavounga (Kinkala)	11	7	2	0
Yangui (Kinkala)	3	6	1	0
Niangui (Kinkala)	0	0	0	0
Total recorded occurrences	48	47	6	6

Table 3 and Figure 4 show that field-recorded environmental indicators are particularly frequent in Missafou, Yalavounga and Linzolo. Missafou has the largest total of recorded occurrences (41), followed by Yalavounga (20) and Linzolo (18). Missafou combines the highest numbers

of occurrences relating to fragile environments and rivers or lakes. Yalavounga combines very strong hydrological proximity with frequent indicators affecting fragile environments. Linzolo also presents a sensitive profile because agriculture and trade occur in a context of strong proximity to water points. These totals are counts of field-recorded occurrences, not measured damage rates.

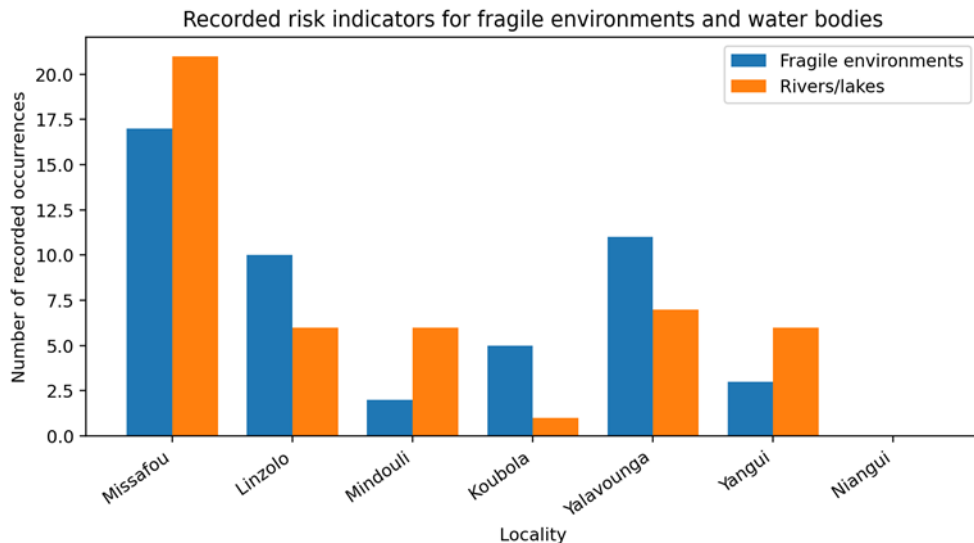


Figure 4: Recorded risk indicators for fragile environments and rivers/lakes

Environmental vigilance typology

Table 4: Locality-level environmental vigilance typology and potential vigilance level

Locality	Vigilance profile	Monitoring priority	Potential vigilance level
Missafou	Multi-activity hydrological-risk profile	Integrated agriculture-livestock-fish-farming planning and riparian protection	Very high
Linzolo	Agricultural-commercial hydrological profile	Control of riparian clearing and monitoring of water points	Very high
Mindouli	Mixed agro-pastoral profile	Combined management of cropping areas, grazing routes and soils	Moderate to high
Koubola	Pastoral profile	Management of grazing routes, watering points and compacted soils	Moderate
Yalavounga	Highly sensitive agricultural-riparian profile	Strict protection of riverbanks and fragile areas	Very high

Yangui	Agricultural profile with strong hydrological proximity	Vegetated buffer strips and limitation of burning	Very high
Niangui	Limited-data profile	Additional field investigation required	Indeterminate (limited data)

Table 4 presents the locality-level profiles and their qualitative potential vigilance levels. Table 5 consolidates these locality-specific labels into four main profile families: multi-activity hydrological-risk, agricultural-riparian/hydrological, mixed agro-pastoral and pastoral. Niangui is retained as a separate limited-data category and is not counted as a fifth main profile. This typology makes it possible to prioritise monitoring measures according to local context rather than applying a uniform strategy to the entire department.

Table 5: Decision rules for the four principal environmental vigilance profiles

Main profile family	Defining combination / decision rule	Localities	Potential vigilance level
Multi-activity hydrological-risk	At least four activity categories; 66.2% water proximity; highest indicator total (41).	Missafou	Very high
Agricultural-riparian/hydrological	Agriculture dominant; water proximity at least 90%; recurrent riparian or fragile-area indicators.	Linzolo, Yalavounga and Yangui	Very high
Mixed agro-pastoral	Agriculture and livestock nearly balanced; water proximity 65.0-74.9%; lower indicator total.	Mindouli	Moderate to high
Pastoral	Livestock exceeds agriculture; water proximity below 65%; localised grazing, compaction and watering-point indicators.	Koubola	Moderate

Note: These are qualitative screening priorities, not measured probabilities or validated physical risk scores. Niangui remains an indeterminate limited-data category.

The purposive locality sample and unequal numbers of valid records do not support calculation of a single quantitative risk status for the entire Pool Department. At the screening level, however, the findings indicate that vigilance should be highest where rural activities coincide with strong hydrological proximity and recurrent fragile-environment or water-resource indicators, particularly in Missafou, Linzolo, Yalavounga and Yangui. Mindouli and Koubola diverge from the strongest hydrological-risk pattern because their profiles are driven more by the composition of activities—mixed agro-pastoral in Mindouli and relatively pastoral in Koubola—and by fewer

recorded water-related indicators. This divergence does not imply an absence of pressure; it indicates a different pathway requiring soil, grazing-route and watering-point management.

Discussion

Vigilance profiles rather than declared drivers of deforestation

The originality of this paper lies in its focus on environmental vigilance profiles rather than on declared drivers of deforestation. This distinction is important for submission as a separate diagnostic study. While many studies in the Congo Basin focus on forest-cover loss or on the rural complex, this article uses field-based environmental variables to classify localities according to recorded conditions requiring environmental vigilance. This regional framing is supported by Congo Basin studies showing that smallholder clearing and the rural complex - including small-scale agriculture, settlements, roads and wood extraction - remain major sources of disturbance, particularly in fragmented forests (Ernst et al., 2013; Tegegne et al., 2016; Tyukavina et al., 2018; Shapiro et al., 2023). This approach is closer to applied environmental monitoring and land-use diagnosis, as recommended in long-term land-cover assessments across West Africa (Brink & Eva, 2009; Vittek et al., 2014; Herrmann et al., 2020).

The results confirm that agriculture structures most local profiles, but agriculture does not create the same risks everywhere. In Yalavounga and Yangui, agricultural observations coincide with very high hydrological sensitivity, whereas Missafou combines agricultural, livestock, commercial and fish-farming activities. This supports the conclusion that environmental diagnosis should be spatially differentiated. Similar findings have been reported in West Africa, where land-use transitions are location-specific and depend on the interaction between human activities, ecological context and water-resource conditions (Barnieh et al., 2020; Nsor et al., 2019).

Riparian environments as a central component of environmental diagnosis

The high proportion of observations close to rivers or water points indicates that riparian environments should be central to environmental monitoring in the Pool Department. Studies from West African floodplains and wetlands show that agricultural encroachment, grazing, fuelwood extraction and settlement expansion can transform floodplain vegetation, reduce surface-water area, increase bare ground and intensify erosion and sedimentation (Nsor et al., 2019). In the Pool Department, recent work on degraded forest and savannah soils at Mayitoukou also highlights differences in rainwater infiltration and soil moisture dynamics between degraded forest and savannah ecosystems (Gomat et al., 2024).

The profiles of Yalavounga, Yangui and Linzolo indicate that rural activities should be accompanied by basic rules for riverbank protection: maintenance of vegetated buffer strips, limitation of riparian clearing, control of organic waste, improved management of fish ponds and prevention of trampling around water points. These measures fall under a preventive approach to degradation rather than a purely corrective response after forest loss has occurred.

Specificity of pastoral and agro-pastoral profiles

Koubola and Mindouli show that environmental vigilance cannot be reduced to agriculture alone. Livestock may generate localised impacts on soils, riverbanks and grazing areas. The Koubola profile is especially important because ecological work conducted in the secondary forest of Koubola confirms the conservation value of local secondary formations and the need to avoid further simplification of habitats (Ndzai et al., 2022). Evidence from Miombo landscapes in the Democratic Republic of Congo also shows that savannahs, degraded open forests and anthropised zones often form connected ecological units under pressure from slash-and-burn agriculture, fuelwood exploitation, bushfires and demographic pressure (Kalawu et al., 2023).

Implications for local environmental monitoring

An effective environmental monitoring strategy in the Pool Department should be based on local profiles. Departmental environmental, forestry and agricultural services should work with district authorities, extension agents and village committees to implement and document the recommended measures. Missafou and Yalavounga should receive the first integrated field checks because they combine the highest recorded-indicator totals with diversified activities or very high hydrological proximity. Linzolo and Yangui should follow for riparian monitoring, while Mindouli requires combined cropping, grazing and soil management, Koubola requires targeted grazing-route and watering-point management, and Niangui requires additional data collection before a vigilance level is assigned.

A minimum routine monitoring set should record: (i) the number and type of activities occurring near rivers or water points; (ii) the presence and continuity of vegetated riparian buffers; (iii) visible riverbank erosion or riparian clearing; (iv) bare ground and soil compaction around grazing and watering points; (v) visible changes in water condition; and (vi) conflict or inequality flags associated with access to land and water. Repeated recording of these indicators would permit the preliminary profiles to be updated and would identify where direct soil and water measurements are most urgently needed.

The value of this field-screening approach is strengthened when it is linked to spatial indicators. Congo Basin research has shown that condition-based metrics combining forest-cover history, fragmentation and biomass-related information can improve the prioritisation of conservation and management interventions (Shapiro et al., 2021).

Limitations of the study

This study does not directly measure deforestation and does not use community perceptions of its causes. It therefore does not attribute forest loss to specific actors or practices. Its contribution is operational: it identifies where environmental vigilance should be prioritised from structured field-screening records. A critical limitation is the absence of direct biophysical measurements of erosion, soil compaction, water quality, pollutant loads, vegetation condition or hydrological processes. The recorded indicators depend partly on observer judgement and may be affected by uneven record completeness and unequal numbers of observations among localities. Moreover, the database did not permit calculation of agricultural or rural land-area proportions, and the purposive sample does not support statistical extrapolation to the whole Pool Department. The qualitative vigilance levels are therefore preliminary screening categories, not measured probabilities, causal effects or validated physical risk scores. Future research should combine the present typology with standardized soil and water measurements, GPS-referenced observations, land-cover mapping, repeated surveys and independent ecological validation.

Conclusions

With the analysis restricted to environmental and territorial field-screening records, this paper identified environmental vigilance profiles associated with rural activities in several localities of the Pool Department. The profiles are defined by combinations of activity structure, hydrological proximity and recorded environmental indicators rather than by respondent perceptions or direct physical risk measurements. Agriculture dominates most localities, but the configurations differ: Missafou has a diversified multi-activity hydrological-risk profile; Yalavounga and Yangui have agricultural-riparian/hydrological profiles; Linzolo combines agricultural-commercial activity with high hydrological sensitivity; Mindouli has a mixed agro-pastoral profile; and Koubola has a relatively pastoral profile.

The main contribution of the paper is a qualitative environmental vigilance typology that can guide local monitoring and rural land-use planning. Its policy implication is that a uniform departmental strategy would be inappropriate. Departmental services and local authorities should prioritise integrated field checks in Missafou and Yalavounga, riparian protection in

Linzolo and Yangui, coordinated cropping and grazing management in Mindouli, and grazing-route, soil and watering-point management in Koubola. Niangui requires additional observations before ranking. Routine monitoring should at minimum document activities near water, riparian-buffer condition, visible erosion, soil compaction, water-condition changes and land- or water-access conflict flags. Because the study does not quantify physical risk or deforestation, the proposed levels should be used to prioritise further measurements and preventive action rather than as definitive risk scores.

Acknowledgements: The authors thank the Laboratory of Remote Sensing and Forest Ecology, Marien Ngouabi University, for scientific and institutional support during the development of this manuscript.

Author contributions: MAKAYA Helischa Audrey contributed to field data collection, data organisation and description of the surveyed localities. IFO Suspense Averti contributed to study conceptualisation, methodological supervision, analysis, interpretation of results and critical revision of the manuscript. Both authors read and approved the final manuscript.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

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Expansion urbaine et recul des surfaces végétalisées à Bouaké et Korhogo (Côte d'Ivoire) : analyse diachronique par télédétection

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[Doi:10.19044/esj.2026.v22n23p107](https://doi.org/10.19044/esj.2026.v22n23p107)

Submitted: 25 May 2026
Accepted: 01 August 2026
Published: 31 August 2026

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OPEN ACCESS

Cite As:

Soro, G., Coulibaly, N., Vanga, A.F., & Kouakou, K. P-A. (2026). *Expansion urbaine et recul des surfaces végétalisées à Bouaké et Korhogo (Côte d'Ivoire) : analyse diachronique par télédétection*. European Scientific Journal, ESJ, 22 (23), 107.
<https://doi.org/10.19044/esj.2026.v22n23p107>

Résumé

Cette étude analyse l'évolution des surfaces bâties et végétalisées dans les départements de Bouaké et de Korhogo entre 2000 et 2025. Elle repose sur une classification supervisée par Random Forest d'images Landsat 7 ETM+ pour 2000 et 2010, et Sentinel-2 L2A pour 2025. Les images ont été harmonisées à une résolution de 30 m. Quatre classes ont été retenues : végétation, zones bâties, sols nus et surfaces en eau. La validation interne, réalisée à partir de pixels extraits des polygones utilisés pour l'apprentissage, a donné des précisions globales comprises entre 99,75 % et 99,95 %. En l'absence d'un échantillon indépendant, ces valeurs mesurent uniquement la cohérence interne des classifications. Entre 2000 et 2025, les surfaces bâties ont augmenté de 56,2 % à Bouaké et de 131,1 % à Korhogo. Dans le même temps, les surfaces végétalisées ont diminué respectivement de 12,6 % et de 39,2 %. À Bouaké, le rythme d'expansion du bâti a nettement ralenti après 2010. À Korhogo, il est resté élevé et le bâti est devenu la classe dominante en 2025. Ces résultats montrent des trajectoires d'expansion différentes. Leur

interprétation doit toutefois tenir compte de l'agrégation de la classe « végétation » et des limites du dispositif de validation.

Mots-clés : Expansion urbaine ; surfaces végétalisées ; analyse diachronique ; télédétection ; Random Forest ; Bouaké ; Korhogo ; Côte d'Ivoire

Urban Expansion and the Decline in Green Spaces in Bouaké and Korhogo (Côte d'Ivoire): A Diachronic Analysis Using Remote Sensing

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Abstract

This study examines changes in built-up and vegetated areas in the departments of Bouaké and Korhogo between 2000 and 2025. It uses Landsat 7 ETM+ images for 2000 and 2010 and Sentinel-2 L2A images for 2025. The images were harmonized at a spatial resolution of 30 m and classified using the Random Forest algorithm in R. Four land-cover classes were considered: vegetation, built-up areas, bare land, and water bodies. Internal validation, based on pixels extracted from the training polygons, produced overall accuracy values ranging from 99.75% to 99.95%. These values measure the internal consistency of the classifications and do not represent independent validation. Between 2000 and 2025, built-up areas increased by 56.2% in Bouaké and 131.1% in Korhogo. Vegetated areas decreased by 12.6% and 39.2%, respectively. Urban expansion slowed markedly in Bouaké after 2010 but remained high in Korhogo, where built-up areas became the dominant class in 2025. These results show different urban expansion patterns in the two departments. However, their interpretation must consider the broad definition of the vegetation class and the limits of the validation method.

Keywords: Urban expansion; vegetated areas; diachronic analysis; remote sensing; Random Forest; Bouaké; Korhogo; Côte d'Ivoire

Introduction

L'urbanisation transforme rapidement les territoires. À l'échelle mondiale, la population urbaine est passée de 751 millions de personnes en 1950 à 4,2 milliards en 2018. Elle représentait alors 55 % de la population mondiale (Nations Unies, 2019). Cette croissance s'accompagne d'une extension des surfaces bâties vers les périphéries.

En Afrique, les surfaces bâties ont augmenté de 64 % entre 2000 et 2015, passant de 16 000 à 26 000 km². Dans le même temps, la population urbaine a progressé de 42 % (UN-Habitat, 2022). Les villes occupent donc des espaces de plus en plus vastes par rapport à leur population. Cette situation correspond à un étalement urbain peu dense (Angel *et al.*, 2011 ; Seto *et al.*, 2011).

L'expansion du bâti modifie l'occupation du sol dans les périphéries urbaines. Elle peut entraîner la conversion de terres agricoles et de milieux naturels. Elle modifie aussi les conditions d'accès à la terre et les activités des populations. Ces changements sont liés à plusieurs facteurs, dont la croissance démographique, les transactions foncières, la planification urbaine et les règles coutumières ou administratives d'accès au foncier (Lavigne Delville, 1998 ; Durand-Lasserve et Royston, 2002).

En Afrique de l'Ouest, la part de la population urbaine est passée de 15 % en 1950 à 47 % en 2018. Elle pourrait atteindre 67 % en 2050 (Nations Unies, 2018). Dans plusieurs villes, l'urbanisation se développe surtout par extension horizontale et touche des périphéries encore largement végétalisées (Herrera Gomez *et al.*, 2017). Des évolutions comparables ont été observées à Bafoussam, au Cameroun, et à Kumasi, au Ghana (Yemmafouo, 2013 ; Cobbinah et Amoako, 2012).

Cependant, les recherches portent surtout sur les grandes métropoles. Les villes secondaires africaines restent moins étudiées, alors qu'elles accueillent une part croissante de la population urbaine (Cohen, 2006 ; Simon *et al.*, 2018). Leur expansion peut être influencée par des crises politiques, des changements économiques ou des transformations institutionnelles (Potere et Schneider, 2007 ; Bjarnesen et Turner, 2013). Une analyse sur plusieurs périodes permet de repérer ces changements de trajectoire.

En Côte d'Ivoire, le taux d'urbanisation est passé de 19 % en 1960 à 51,7 % en 2021 (INS, 2021). Les études disponibles concernent surtout Abidjan. Les dynamiques d'occupation du sol des autres grandes villes du pays restent moins documentées sur une longue période.

Bouaké et Korhogo occupent une place particulière dans le système urbain ivoirien. Bouaké comptait 832 371 habitants en 2021 et Korhogo 440 926 (INS, 2021). Les deux villes ont connu une croissance spatiale, mais leurs trajectoires historiques diffèrent. Bouaké a été directement touchée par la crise politico-militaire de 2002 à 2011 (Kouakou, 2017). Sylla *et al.* (2023) ont

étudié l'expansion de Korhogo à partir des lumières nocturnes et d'outils des systèmes d'information géographique. Toutefois, peu d'études ont comparé l'évolution du bâti, de la végétation, des sols nus et des surfaces en eau dans ces deux départements sur une même période.

Cette étude analyse l'évolution des surfaces bâties et végétalisées dans les départements de Bouaké et de Korhogo entre 2000 et 2025. Elle compare aussi le rythme de l'expansion urbaine dans les deux territoires. L'analyse repose sur des images satellitaires acquises en 2000, 2010 et 2025 et traitées par classification supervisée.

1. Méthodologie

1.1. Présentation des sites d'étude

Bouaké se situe au centre de la Côte d'Ivoire. La ville est le chef-lieu de la région du Gbêkê et constitue un carrefour routier et ferroviaire entre le nord et le sud du pays. Elle occupait le deuxième rang des agglomérations ivoiriennes et comptait 832 371 habitants en 2021 (INS, 2021). Son département couvre environ 1 766 km². Il appartient à une zone climatique de transition, avec un régime pluviométrique bimodal et des précipitations annuelles comprises entre 1 100 et 1 300 mm.

Bouaké exerce des fonctions administratives, commerciales et de transport à l'échelle nationale. La ville a aussi été au centre de la crise politico-militaire de 2002 à 2011. Cette période a affecté les déplacements de population, les investissements et l'organisation économique et spatiale de la ville (Kouakou, 2017).

Korhogo se situe dans le nord de la Côte d'Ivoire. La ville est le chef-lieu de la région du Poro et un centre administratif et commercial du nord du pays. Elle occupait le troisième rang des agglomérations ivoiriennes et comptait 440 926 habitants en 2021 (INS, 2021). Son département couvre environ 1 500 km². Il appartient au domaine soudanien, caractérisé par une seule saison des pluies et des précipitations annuelles comprises entre 1 200 et 1 400 mm. Son économie régionale est liée aux échanges et aux activités agricoles, dont le coton, l'anacarde et la mangue.

Le choix de Bouaké et de Korhogo permet donc de comparer deux villes secondaires importantes, situées dans des milieux différents et marquées par des trajectoires historiques distinctes. Cette comparaison aide à décrire les changements d'occupation du sol sans attribuer automatiquement les écarts observés à un seul facteur.

1.2. Données satellitaires et classification

L'évolution de l'occupation du sol a été analysée à partir d'images acquises en 2000, 2010 et 2025. Les classifications de 2000 et de 2010 reposent sur des images Landsat 7 ETM+, tandis que celles de 2025 utilisent

des images Sentinel-2 L2A. Les scènes ont été choisies en saison sèche afin de limiter la nébulosité et les effets de l'humidité saisonnière sur les signatures spectrales. Les prétraitements ont compris la correction atmosphérique, le découpage selon les limites départementales et le masquage des nuages résiduels. À Bouaké, les dates d'acquisition indiquées dans les planches cartographiques sont les 31 janvier, 16 février et 13 avril 2000 ; les 18 et 27 décembre 2010 ; puis les 13 janvier et 22 décembre 2025. À Korhogo, les dates indiquées sont les 16 décembre 2000 et 2010, puis le 29 décembre 2025. Les données Sentinel-2 ont été rééchantillonnées à 30 m par agrégation moyenne afin de permettre la comparaison avec Landsat (Roy *et al.*, 2016 ; Wulder *et al.*, 2022).

La cartographie a été réalisée par classification supervisée avec l'algorithme Random Forest sous R. Cet algorithme peut traiter des relations non linéaires entre les variables spectrales et limiter le surajustement par l'agrégation d'arbres de décision (Breiman, 2001 ; Pal, 2005 ; Belgiu et Drăguț, 2016). Quatre classes ont été retenues : la végétation, qui regroupe les formations boisées, les savanes, les cultures et les jachères, sans distinction d'usage ; les zones bâties, comprenant les bâtiments, les voiries et les surfaces imperméables ; les sols nus ; et les surfaces en eau. Cette agrégation assure une nomenclature commune aux images Landsat et Sentinel-2, mais elle ne permet pas de mesurer séparément la perte de terres agricoles.

Les échantillons d'apprentissage proviennent de polygones de référence représentant les quatre classes. Les signatures spectrales ont été extraites pixel par pixel dans ces polygones. Pour 2000 et 2010, les polygones ont été délimités par interprétation visuelle des archives Landsat et par examen de la cohérence spatiale des scènes. Pour 2025, ils ont été établis à partir des images Sentinel-2 L2A et, lorsque cela était possible, d'images récentes à haute résolution. Les archives disponibles pour la présente révision ne permettent pas de restituer avec certitude les identifiants complets des scènes, le nombre, la taille et la répartition des polygones par classe, ni les hyperparamètres de Random Forest. Ces informations ne sont donc pas reconstruites a posteriori. Leur absence limite la reproductibilité complète du traitement.

L'exactitude a été évaluée à partir de matrices de confusion calculées sur les pixels extraits des polygones de référence utilisés pendant la classification. Les effectifs correspondent donc à des pixels, et non à des parcelles ou à des points de terrain indépendants. Il s'agit d'une validation interne : aucun jeu de validation indépendant n'a été séparé du jeu d'apprentissage, et aucune distance minimale n'a été appliquée entre les pixels voisins. Les précisions globales et les coefficients Kappa mesurent ainsi la cohérence interne du classificateur avec les polygones de référence. Ils ne

mesurent pas l'exactitude cartographique indépendante au sens strict (Foody, 2002 ; Congalton et Green, 2009).

Pour chacune des six classifications, les indicateurs calculés sont la précision globale (PG), la précision du producteur, la précision de l'utilisateur et le coefficient Kappa (κ). La précision globale varie de 99,75 % à 99,95 % et le coefficient Kappa de 0,995 à 0,999. Ces valeurs élevées peuvent être liées au faible nombre de classes, à leur différenciation spectrale et au grand nombre de pixels extraits. Elles doivent surtout être lues comme des indicateurs de performance interne, et non comme une validation indépendante de terrain.

1.3. Calcul des indicateurs d'expansion urbaine

Deux indicateurs ont été utilisés. Le taux d'expansion absolue, exprimé en hectares par an, mesure l'augmentation moyenne des surfaces bâties entre deux dates (Seto *et al.*, 2011 ; Angel *et al.*, 2011). Le taux d'expansion relative rapporte le gain annuel de surface bâtie à la superficie totale du département. Il facilite la comparaison entre des territoires de tailles différentes (Cohen, 2006 ; Cobbinah et Amoako, 2012). Les deux indicateurs ont été calculés pour 2000-2010 et 2010-2025.

Tableau 1: Indicateurs de cohérence interne des classifications.

Site	Année	N pixels	PG (%)	κ	Végétation Prod./Util.	Zones bâties Prod./Util.	Sol nu Prod./Util.	Eau Prod./Util.
Bouaké	2000	20 159	99,84	0,997	99,97 / 99,96	99,86 / 99,90	99,91 / 99,82	97,06 / 97,06
Bouaké	2010	7 890	99,94	0,999	100 / 100	99,92 / 99,88	99,83 / 99,92	99,42 / 99,42
Bouaké	2025	13 040	99,82	0,997	99,92 / 99,97	99,78 / 99,76	99,76 / 100	98,52 / 97,08
Korhogo	2000	22 683	99,95	0,999	99,99 / 99,99	99,76 / 99,84	100 / 100	99,51 / 99,19
Korhogo	2010	21 200	99,75	0,995	99,88 / 99,88	99,45 / 99,34	99,75 / 99,97	97,90 / 97,45
Korhogo	2025	87 879	99,95	0,999	99,99 / 99,99	99,95 / 99,90	99,99 / 100	98,79 / 99,45

Note : PG = précision globale ; κ = coefficient Kappa ; Prod. = précision du producteur (%) ; Util. = précision de l'utilisateur (%). Les effectifs sont des pixels extraits des polygones de référence, et non des points de terrain indépendants. Source : calculs des auteurs à partir des matrices de confusion issues des classifications supervisées par Random Forest des images Landsat 7 ETM+ (2000 et 2010) et Sentinel-2 L2A (2025), sous R.

1.4. Portée méthodologique des indicateurs d'exactitude

Les niveaux de précision obtenus sont supérieurs aux valeurs généralement rapportées pour des classifications d'occupation du sol. Cette différence s'explique en partie par le protocole utilisé : les matrices de confusion ont été produites avec les pixels des mêmes polygones que ceux utilisés pour l'apprentissage. Une telle validation interne tend à produire des indicateurs plus élevés qu'une validation indépendante fondée sur un échantillon spatialement séparé.

Le grand nombre d'observations, notamment à Korhogo en 2025, vient de l'extraction pixel par pixel. Il ne correspond pas au même nombre de parcelles ou de points indépendants. De plus, les pixels voisins d'un même polygone ont souvent des signatures proches. Cette autocorrélation spatiale

peut augmenter la concordance entre les classes prédites et les classes de référence.

En l'absence d'un échantillon de validation indépendant, il n'est pas possible d'estimer des intervalles de confiance ou des superficies ajustées selon l'erreur de classification, conformément aux recommandations d'Olofsson *et al.* (2014). Les superficies présentées sont donc les surfaces cartographiées, sans correction statistique de l'erreur. Les cartes permettent une comparaison diachronique fondée sur une nomenclature et un protocole communs, mais l'incertitude des superficies reste non quantifiée.

2. Résultats

2.1. Dynamique d'expansion urbaine à Bouaké (2000-2025)

Le tableau 2 et la figure 1 présentent les changements d'occupation du sol dans le département de Bouaké aux trois dates retenues.

Tableau 2: Évolution de l'occupation du sol dans le département de Bouaké (2000-2025).

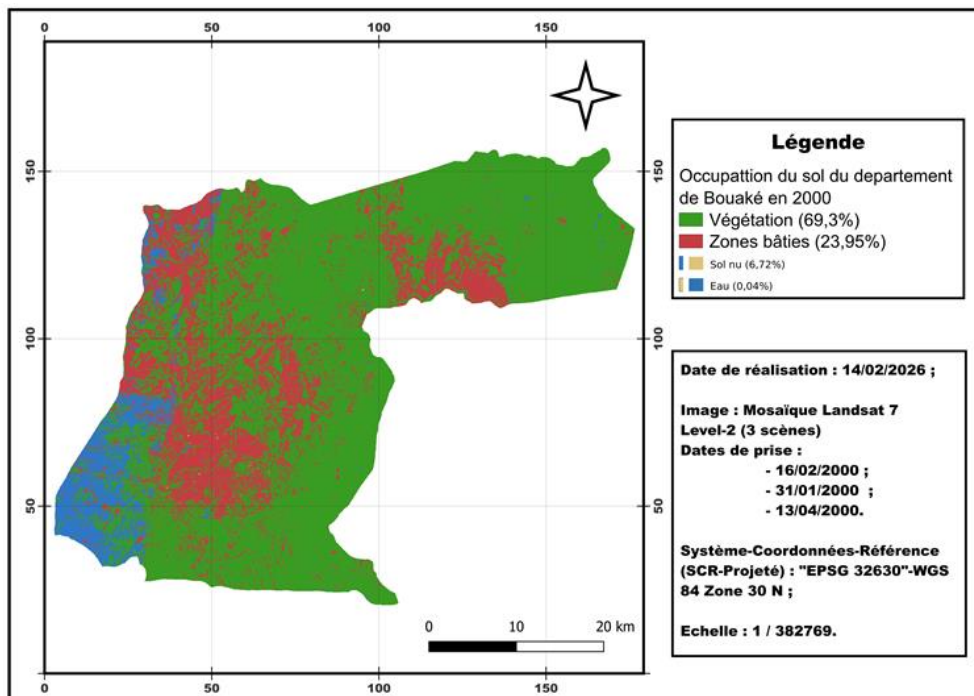
Classe	2000 ha	2000 %	2010 ha	2010 %	2025 ha	2025 %	Variation (%)
Végétation	122 392	69,30	112 680	63,79	106 992	60,58	-12,6
Zones bâties	42 301	23,95	60 279	34,14	66 071	37,41	+56,2
Sol nu	11 860	6,72	3 497	1,98	3 330	1,89	-71,9
Eau	71	0,04	177	0,10	230	0,13	+269,4

Source du tableau 2 et de la figure 1 : traitement et calculs des auteurs à partir des classifications supervisées par Random Forest des images Landsat 7 ETM+ (2000 et 2010) et Sentinel-2 L2A (2025), sous R.

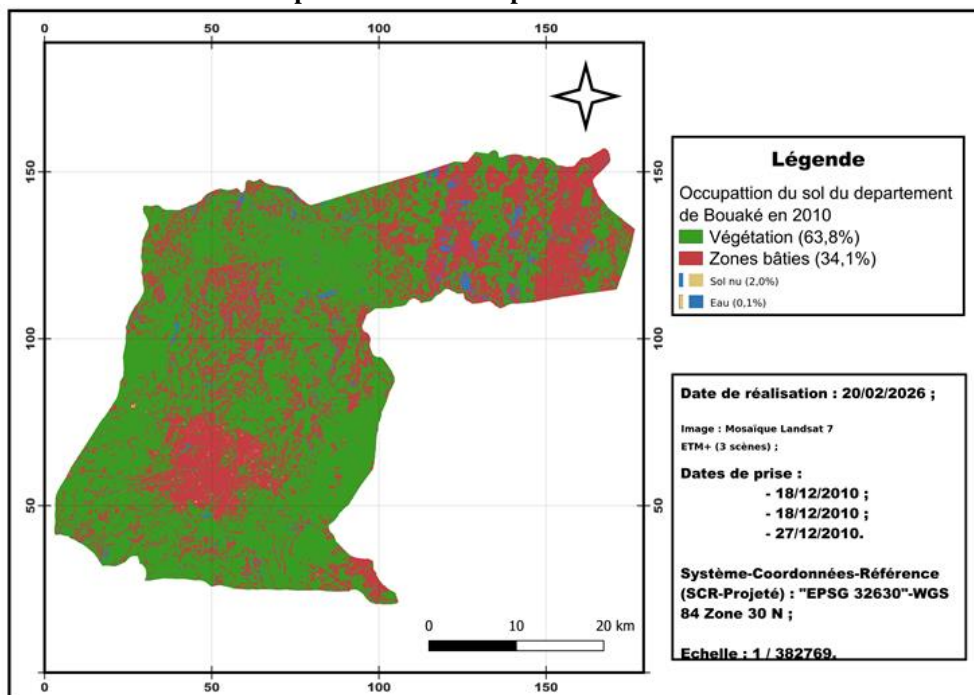
En 2000, les milieux végétalisés occupaient la plus grande part du territoire départemental, avec 122 392 ha, soit 69,30 % de la superficie totale. En 2025, ils s'étendent encore sur 106 992 ha, soit 60,58 %, ce qui correspond à une baisse nette d'environ 15 400 ha (-12,6 %). Parallèlement, les zones bâties passent de 42 301 ha (23,95 %) à 66 071 ha (37,41 %), soit un gain de 23 770 ha (+56,2 %). Les surfaces de sol nu diminuent également de manière marquée, passant de 11 860 ha (6,72 %) à 3 330 ha (1,89 %).

L'analyse par sous-périodes met en évidence des dynamiques différenciées. Durant la décennie 2000-2010, l'extension des zones bâties progresse d'environ 1 800 ha par an. Entre 2010 et 2025, le rythme ralentit nettement pour se situer autour de 385 ha par an, soit une diminution d'environ 79 % par rapport à la première décennie.

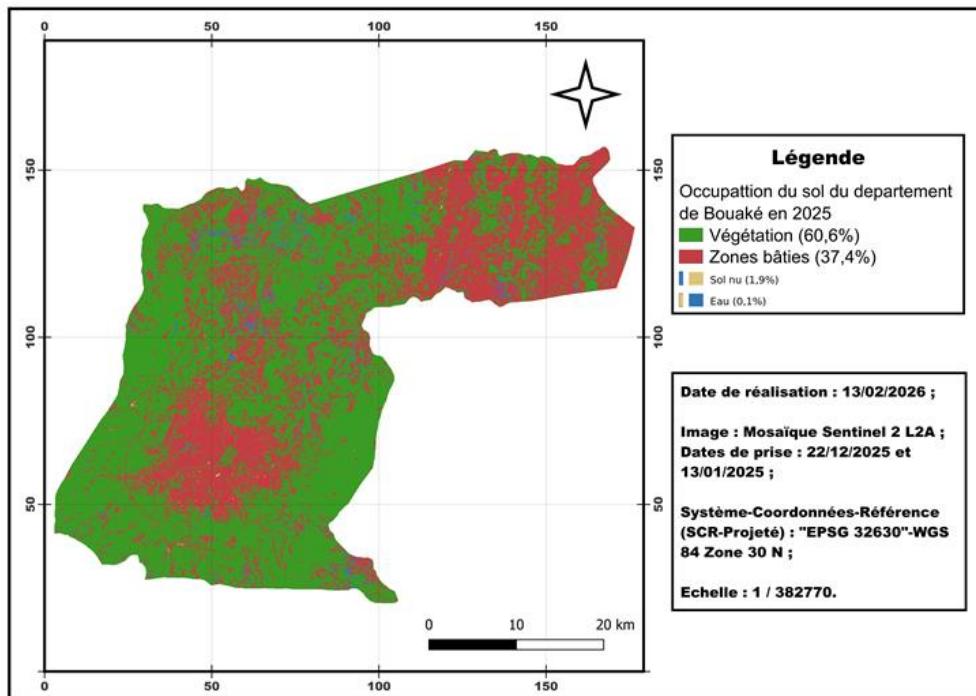
Figure 1 (a.b.c) : Evolution de l'occupation du sol dans le département de Bouaké de 2000 à 2025



a. Occupation du sol du département de Bouaké en 2000



b. Occupation du sol du département de Bouaké en 2010



c. **Occupation du sol du département de Bouaké en 2025**

Source : réalisation des auteurs à partir des classifications supervisées par Random Forest des images Landsat 7 ETM+ (2000 et 2010) et Sentinel-2 L2A (2025), sous R.

2.2. Expansion urbaine à Korhogo (2000-2025)

Le tableau 3 et la figure 2 présentent l'évolution de l'occupation du sol dans le département de Korhogo aux mêmes dates.

Tableau 3: Évolution de l'occupation du sol dans le département de Korhogo (2000-2025)

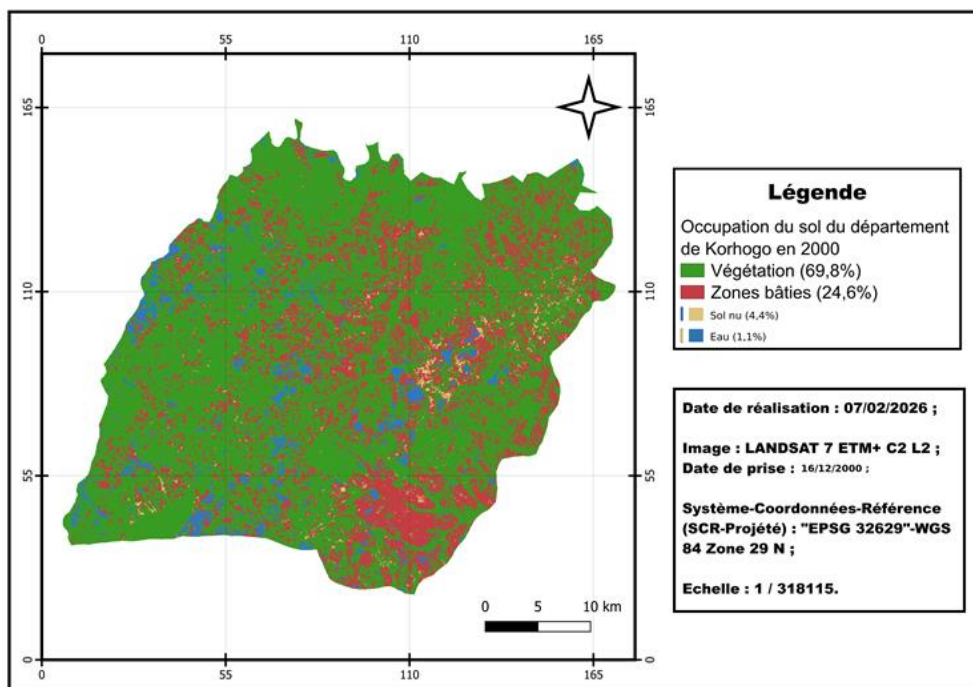
Classe	2000 ha (%)	2010 ha (%)	2025 ha (%)	Variation (%)
Végétation	104 710 (69,82)	82 434 (54,97)	63 614 (42,37)	-39,2
Zones bâties	36 907 (24,61)	61 475 (40,99)	85 278 (56,80)	+131,1
Sol nu	6 667 (4,45)	4 848 (3,23)	618 (0,41)	-90,7
Eau	1 686 (1,12)	1 213 (0,81)	632 (0,42)	-62,5

Source du tableau 3 et de la figure 2 : calculs des auteurs à partir des classifications supervisées par Random Forest des images Landsat 7 ETM+ (2000 et 2010) et Sentinel-2 L2A (2025), sous R.

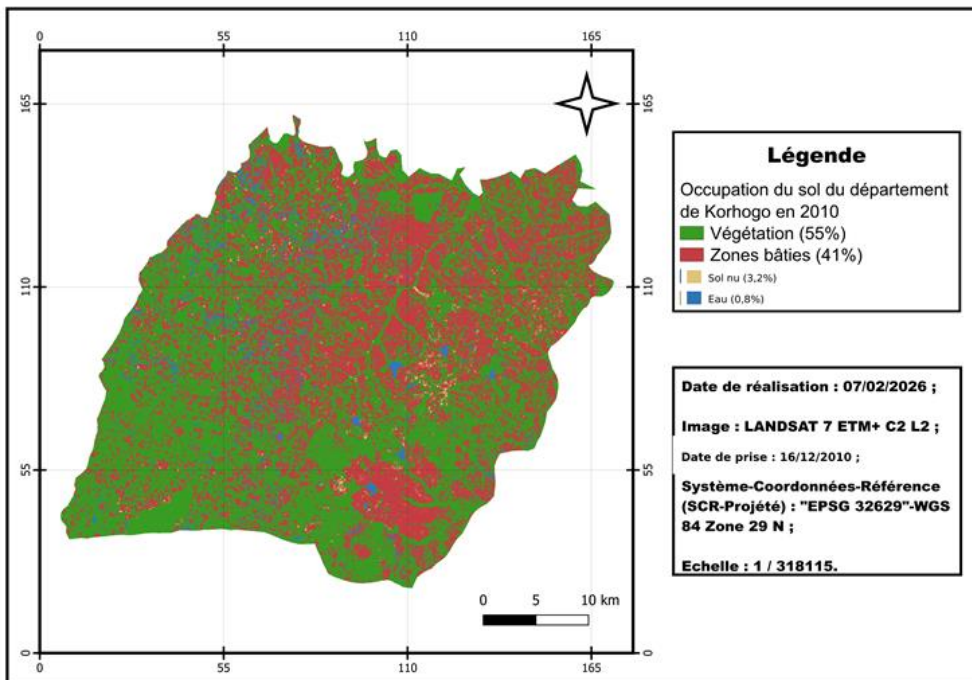
En 2000, les espaces végétalisés occupaient 104 710 ha, soit 69,82 % du département de Korhogo, tandis que les zones bâties représentaient 36 907 ha, soit 24,61 %. En 2025, la situation s'inverse : les zones bâties atteignent 85 278 ha, soit 56,80 % du territoire départemental, alors que les espaces végétalisés se réduisent à 63 614 ha, soit 42,37 %. Au total, on constate une réduction nette de 41 096 ha des espaces végétalisés (-39,2 %) et, en parallèle, un accroissement de 48 371 ha des surfaces bâties (+131,1 %). Les sols nus reculent également, de 6 667 ha à 618 ha, tandis que les surfaces en eau se

contractent de 1 686 ha à 632 ha. L'examen des sous-périodes montre que l'extension du bâti se maintient à un rythme soutenu sur l'ensemble de la période considérée. Entre 2000 et 2010, les surfaces bâties progressent d'environ 2 457 ha par an. Entre 2010 et 2025, le rythme reste élevé, avec environ 1 587 ha par an, malgré un ralentissement relatif par rapport à la décennie précédente.

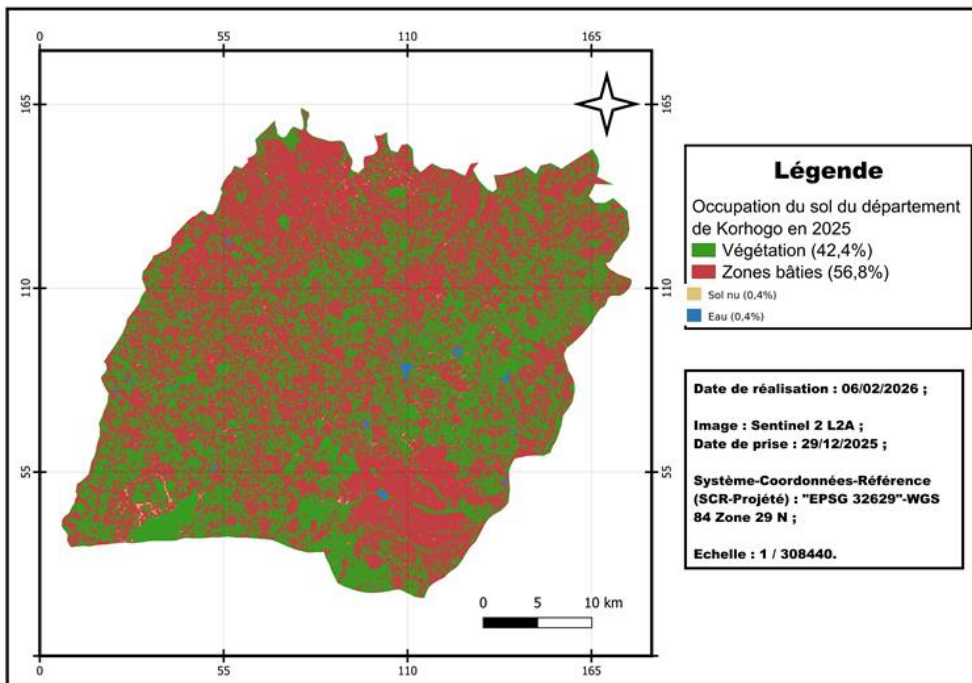
Figure 2 (d.e.f) : Evolution de l'occupation du sol dans le département de Korhogo de 2000 à 2025



d. Occupation du sol du département de Korhogo en 2000



e. Occupation du sol du département de Korhogo en 2010



f. Occupation du sol du département de Korhogo en 2025

Source : réalisation des auteurs à partir des classifications supervisées par Random Forest des images Landsat 7 ETM+ (2000 et 2010) et Sentinel-2 L2A (2025), sous R.

2.3. Analyse comparative

Le tableau 4 rassemble les principaux indicateurs d'expansion urbaine pour les deux départements sur 2000-2025.

Tableau 4: Principaux indicateurs comparatifs d'expansion urbaine à Bouaké et Korhogo (2000-2025).

Indicateur	Bouaké	Korhogo
Part du bâti en 2000 (%)	23,95	24,61
Part du bâti en 2025 (%)	37,41	56,80
Gain total de bâti (ha)	23 770	48 371
Variation du bâti 2000-2025 (%)	56,2	131,1
Rythme d'expansion 2000-2010 (ha/an)	1 800	2 457
Rythme d'expansion 2010-2025 (ha/an)	385	1 587
Variation du couvert végétal 2000-2025 (%)	-12,6	-39,2
Perte nette de couvert végétal (ha)	-15 400	-41 096
Inversion de hiérarchie des classes en 2025	Non	Oui

Source : calculs des auteurs à partir des résultats des classifications de l'occupation du sol présentés dans les tableaux 2 et 3.

En 2000, les parts du bâti étaient proches : 23,95 % à Bouaké et 24,61 % à Korhogo. En 2025, elles atteignent 37,41 % à Bouaké et 56,80 % à Korhogo. Entre 2000 et 2025, la variation relative du bâti est de 56,2 % à Bouaké et de 131,1 % à Korhogo. L'écart entre ces deux variations est donc de 74,9 points de pourcentage. Dans le même temps, les surfaces végétalisées diminuent de 12,6 % à Bouaké et de 39,2 % à Korhogo. À Korhogo, le bâti devient la classe dominante en 2025, contrairement à Bouaké.

3. Discussion

L'analyse montre deux trajectoires d'expansion du bâti entre 2000 et 2025. Dans les deux départements, les surfaces bâties augmentent et les surfaces végétalisées diminuent. Ces résultats rejoignent les travaux qui décrivent l'extension horizontale des villes africaines (Angel *et al.*, 2011 ; Seto *et al.*, 2011 ; Herrera Gomez *et al.*, 2017). Toutefois, l'étude ne calcule pas l'élasticité entre la croissance du bâti et celle de la population sur des périodes harmonisées. Elle ne permet donc pas de démontrer un étalement à faible densité. Cette interprétation reste une hypothèse à tester.

À Bouaké, le rythme annuel d'expansion passe d'environ 1 800 ha entre 2000 et 2010 à 385 ha entre 2010 et 2025, soit une baisse d'environ 79 %. Kouakou (2017) décrit les effets de la crise politico-militaire de 2002 à 2011 sur l'organisation économique et spatiale de la ville. Cette crise peut faire partie des éléments qui éclairent la trajectoire observée. Cependant, la seconde période comprend aussi plusieurs années après 2011. Les données cartographiques ne permettent donc pas d'établir un lien causal entre la crise et le ralentissement mesuré. D'autres facteurs économiques, fonciers ou institutionnels peuvent également intervenir.

À Korhogo, le rythme reste élevé : environ 2 457 ha par an entre 2000 et 2010, puis 1 587 ha par an entre 2010 et 2025. En 2025, le bâti devient la classe dominante à l'échelle du département. Des évolutions comparables ont été décrites à Kumasi et à Bafoussam (Cobbinah et Amoako, 2012 ; Yemmafouo, 2013). L'agrégation de la classe « végétation » ne permet toutefois pas de distinguer la part des cultures, des jachères, des savanes ou des formations boisées dans cette diminution.

Plusieurs mécanismes peuvent être envisagés pour expliquer la dynamique de Korhogo, notamment l'attractivité de la capitale régionale, la demande résidentielle et les arbitrages fonciers en périphérie. La valorisation des filières agricoles de rente peut aussi influencer ces arbitrages. Ces mécanismes restent cependant des hypothèses. Ils ne peuvent pas être confirmés sans données foncières, démographiques et socioéconomiques complémentaires.

La comparaison confirme surtout que l'expansion urbaine n'évolue pas au même rythme dans toutes les villes secondaires. Les changements observés peuvent être associés à des contextes historiques et institutionnels différents (Potere et Schneider, 2007 ; Bjarnesen et Turner, 2013). Le dispositif utilisé décrit ces trajectoires, mais il ne permet pas d'isoler l'effet propre de chaque facteur.

Conclusion

Entre 2000 et 2025, les surfaces bâties augmentent de 56,2 % à Bouaké et de 131,1 % à Korhogo. Dans le même temps, les surfaces végétalisées diminuent respectivement de 12,6 % et de 39,2 %. Après 2010, l'expansion ralentit nettement à Bouaké. À Korhogo, elle reste élevée et le bâti devient la classe dominante en 2025. Ces résultats montrent deux trajectoires d'occupation du sol différentes. Ces résultats doivent être interprétés avec prudence. La classe « végétation » regroupe plusieurs types de couverture et ne permet pas de mesurer directement la perte de terres agricoles. De plus, la validation est interne et l'incertitude des superficies n'est pas quantifiée. Une prochaine étude devrait séparer les sous-classes de végétation, utiliser un échantillon de validation indépendant et intégrer des données foncières, démographiques et socioéconomiques.

Conflit d'intérêts : Les auteurs n'ont signalé aucun conflit d'intérêts.

Disponibilité des données : Toutes les données sont incluses dans le contenu de l'article.

Déclaration de financement : Les auteurs n'ont obtenu aucun financement pour cette recherche.

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Dynamiques socio-spatiales et recompositions territoriales : la métamorphose du Grand Ouaga entre 2015 et 2025

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[Doi:10.19044/esj.2026.v22n23p123](https://doi.org/10.19044/esj.2026.v22n23p123)

Submitted: 27 May 2026

Accepted: 05 August 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Guigma, P.L. (2026). *Dynamiques socio-spatiales et recompositions territoriales : la métamorphose du Grand Ouaga entre 2015 et 2025*. European Scientific Journal, ESJ, 22 (23), 123. <https://doi.org/10.19044/esj.2026.v22n23p123>

Résumé

A l'instar de plusieurs capitales ouest-africaines tel que Abidjan, Dakar, Lomé ou Bamako, Ouagadougou a défini une aire métropolitaine dénommée « Grand Ouaga » depuis 1997, pour mieux planifier son développement urbain et territorial. Mais au cours de cette dernière décennie 2015-2025, Ouagadougou a subi de profondes mutations socio-spatiales qui interpellent sur la reconfiguration de son territoire métropolitain.

L'objectif de cet article est de questionner la définition de limites territoriales pertinentes de l'aire métropolitaine du Grand Ouaga, en décryptant les pratiques socio-spatiales des habitants et leurs impacts multiscalaires (métropolitaine, urbaine et résidentielle) sur la reconfiguration territoriale du Grand Ouaga. Il se fonde sur des analyses exploratoires issues d'enquêtes quantitatives et qualitatives menées auprès de résidents, sur des recherches documentaires et sur des observations de dynamiques socio-spatiales dans le Grand Ouaga au cours de la décennie 2015-2025, y compris durant la période de COVID-19.

Le principal résultat de cette contribution est que la tentative de confinement de Ouagadougou durant la pandémie de COVID-19, les dynamiques d'implantation des péages routiers autour de Ouagadougou, ainsi que l'accaparement des terres par les promoteurs immobiliers et les particuliers

révèlent de nouvelles configurations territoriales du Grand Ouaga, à différentes échelles spatiales. Au-delà de l'évolution visible de la tache urbaine de Ouagadougou, cet article s'appuie sur des repères temporels et factuels atypiques. Il explore la période de Covid 19 et la dynamique d'implantation des nouveaux péages routiers, pour corroborer le périmètre territorial d'accaparements fonciers et d'investissements urbains autour de Ouagadougou. Il révèle ainsi la complexité de la délimitation d'un nouveau périmètre pertinent d'analyse de la prospective métropolitaine du Grand Ouaga.

Mots-clés : Grand Ouaga, COVID-19, configuration territoriale, pratiques socio-spatiales, urbanité, quartier non loti

Socio-Spatial Dynamics and Territorial Restructuring: The Transformation of Greater Ouaga Between 2015 and 2025

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Abstract

Like several West African capitals such as Abidjan, Dakar, Lomé and Bamako, Ouagadougou has defined a metropolitan area known as “Grand Ouaga” since 1997, in order to better plan its urban and territorial development. However, over the last decade (2015–2025), Ouagadougou has undergone profound socio-spatial changes that raise questions about the reconfiguration of its metropolitan territory.

The objective of this article is to examine the relevant territorial boundaries of the Greater Ouaga metropolitan area by analyzing the socio-spatial practices of residents within Greater Ouaga and their multiscale impacts (metropolitan, urban, and residential) on the territorial reconfiguration of Greater Ouaga. It is based on exploratory analyses drawn from quantitative and qualitative surveys of residents, on literature reviews, and on observations of socio-spatial dynamics in Greater Ouaga during the decade 2015–2025, including during the COVID-19 pandemic.

The main finding of this study is that the attempt to lock down Ouagadougou during the COVID-19 pandemic, the dynamics of road toll installation around Ouagadougou, and the land grabbing by property

developers and private individuals reveal new territorial configurations of Greater Ouaga at various spatial scales. Beyond the visible expansion of Ouagadougou's urban area, this article draws on unusual temporal and factual markers. It examines the COVID-19 period and the dynamics surrounding the introduction of new road tolls to substantiate the geographical extent of land grabs and urban investment around Ouagadougou. It thus reveals the complexity of defining a new, relevant scope for analysing the metropolitan outlook of Greater Ouaga.

Keywords: Greater Ouaga, COVID-19, territorial configuration, socio-spatial practices, urbanity, unparcelled neighbourhood

Introduction

Le premier Schéma directeur d'aménagement du Grand Ouaga (SDAGO) a été élaboré en 1997 et adopté en 1999 en Conseil des Ministres. Dix ans après, un deuxième SDAGO a été élaboré, avant d'être finalement adopté en 2020 (Ministère de l'habitat et de l'urbanisme, 2010). En 2024, une étude a été commanditée pour évaluer ce SDAGO adopté en 2020 et dont l'horizon est 2025 (Ministère de l'urbanisme et de l'habitat, 2025). Il convient de préciser que les limites territoriales du premier SDAGO de 1997 avaient été reconduites dans le deuxième SDAGO adopté en 2020. Dès lors, la problématique des critères et des repères pertinents pour délimiter le territoire du troisième SDAGO se pose.

Dans quelle mesure les pratiques socio-spatiales des populations exacerbées par les crises sanitaires et foncières entre 2015 et 2025, redéfinissent-elles les frontières du Grand Ouaga au-delà des cadres de la planification urbaine officielle ?

L'hypothèse principale est que la pandémie de COVID-19, le déplacement des péages routiers et l'analyse des possessions foncières révèlent de nouvelles configurations territoriales aux échelles métropolitaine, urbaine et résidentielle au sein de l'espace du Grand Ouaga. Ces trois angles de vue permettent d'observer des faits corroborant.

Le premier angle de vue est celui de la période de COVID-19. Apparue à Wuhan en Chine le 17 novembre 2019, la pandémie de COVID-19 s'est propagée partout dans le monde, y compris au Burkina Faso où les premiers cas ont été confirmés à Ouagadougou le 09 mars 2020, par les autorités publiques burkinabé. Cette pandémie de COVID-19 a poussé l'État burkinabé à prendre des décisions drastiques comme l'imposition de couvre-feu (21 mars 2020), la fermeture des marchés (25 mars 2020) et la mise en quarantaine de certaines villes (27 mars 2020) dont celle de Ouagadougou, la capitale du Burkina Faso. En effet, dès le mois de mars 2020, des prévisions alarmistes fusaient, notamment celle du Directeur Général de l'Organisation Mondiale

de la Santé, invitant l'Afrique « à se réveiller » (ONU Info, 2020). Un territoire urbain de confinement de Ouagadougou a été délimité à partir des postes de péages et non des limites administratives communales. A l'échelle métropolitaine, l'imprécision de la délimitation de la ville de Ouagadougou a entraîné de facto une difficulté d'appliquer la mise en quarantaine de la population de Ouagadougou, en tant que mesure prise pour réduire la propagation de la pandémie.

Puis, le deuxième angle de vue est celui du déplacement de certains péages routiers qui avaient pourtant servi à délimiter le territoire urbain de Ouagadougou pendant la période de COVID -19. L'analyse des déplacements des péages routiers sera mise en relation avec la gouvernance territoriale, afin de démontrer la complexité de la délimitation d'un territoire urbain figé, notamment la nécessité de circonscrire un territoire homogène métropolitain qui serait régi par des règles communes.

Enfin, le troisième angle de vue est celui de la cartographie des acquisitions foncières des promoteurs immobiliers et des particuliers en vue d'investissements urbains, mais également l'observation des pratiques de densification et d'extension des quartiers non lotis. Il sera montré que ces différentes reconfigurations spatiales à l'échelle locale et résidentielle ont entraîné des répercussions sur l'ensemble du territoire métropolitain du Grand Ouaga.

Après une présentation de la zone d'étude puis de la méthodologie de collecte et d'analyse des données, les résultats des reconfigurations et dynamiques spatiales observées pendant le confinement de COVID-19, suite au déplacement des postes de péages et à travers les acquisitions foncières dans le Grand Ouaga seront présentés, puis discutés à la lumière de la littérature scientifique. Il sera question de la délimitation et de la gouvernance du territoire défini entre les limites administratives de la commune de Ouagadougou et celles de l'espace du Grand Ouaga, comprenant la commune de Ouagadougou et sept autres communes limitrophes.

1. Méthodologie de recherche

Il est présenté ici la zone d'étude ainsi que la méthodologie de collecte et d'analyse des données.

1.1 Présentation de la zone d'étude

La zone d'étude est le territoire métropolitain du Grand Ouaga, mais également le territoire urbain de Ouagadougou mis en quarantaine durant la période de COVID-19, puis un quartier non loti de Ouagadougou dénommé Bissighin, qui a fait l'objet d'investigations dans le cadre de cette recherche.

Le Grand Ouaga¹ est un territoire couvrant une superficie de 330.000 hectares sur un rayon de 30 km autour de la capitale Ouagadougou (Ministère de l'habitat et de l'urbanisme, 2010). Ce territoire de 3,5 millions d'habitants est constitué de la commune urbaine d'Ouagadougou et de sept communes rurales autour de Ouagadougou : Pabré, Tanghin-Dassouri, Komki-Ipala, Komsilga, Koubri, Saaba et Loubila. La commune rurale de Loubila appartient à la région du Plateau Central, distincte de la Région du Centre qui est constituée des six autres communes rurales du Grand Ouaga ainsi que de la commune urbaine de Ouagadougou (Figure 1).

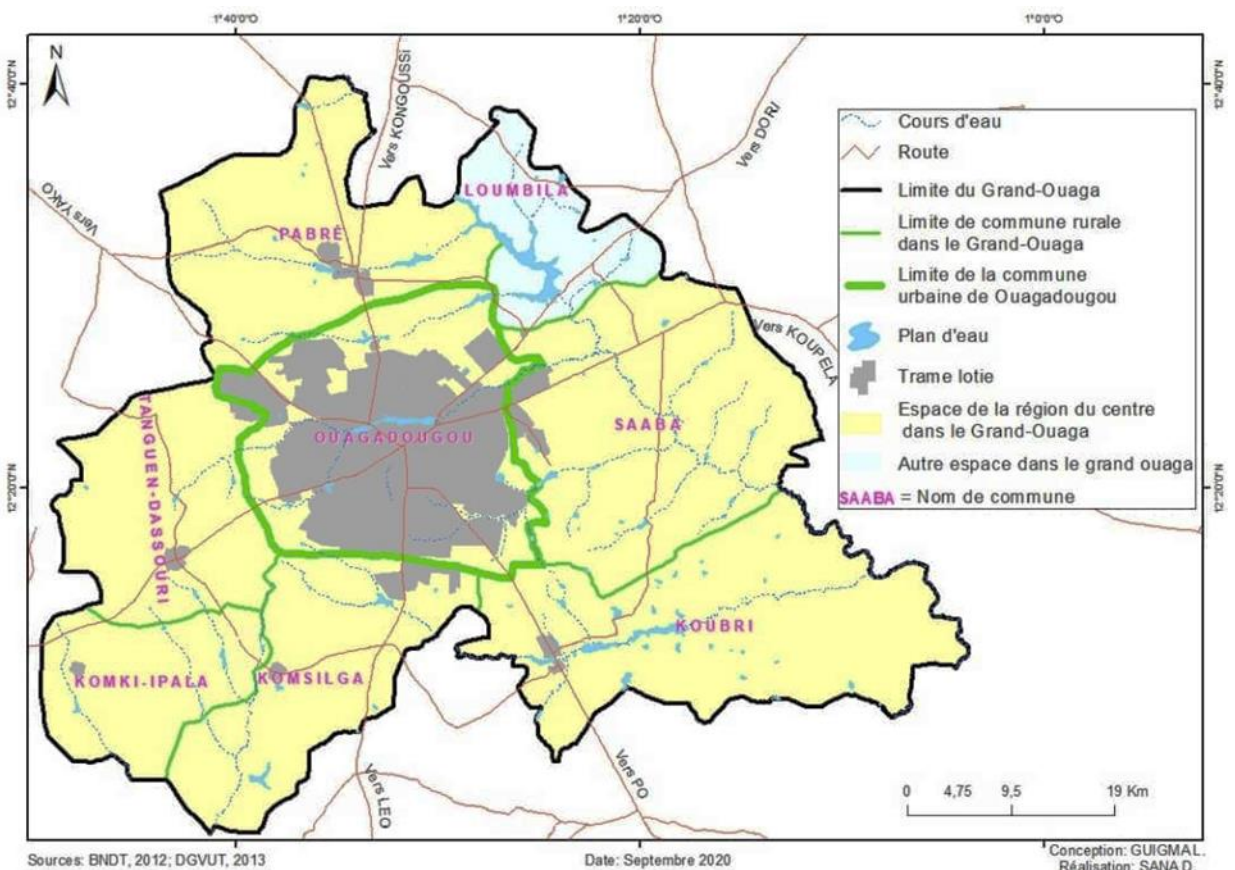


Figure 1 : Territoire du Grand Ouaga

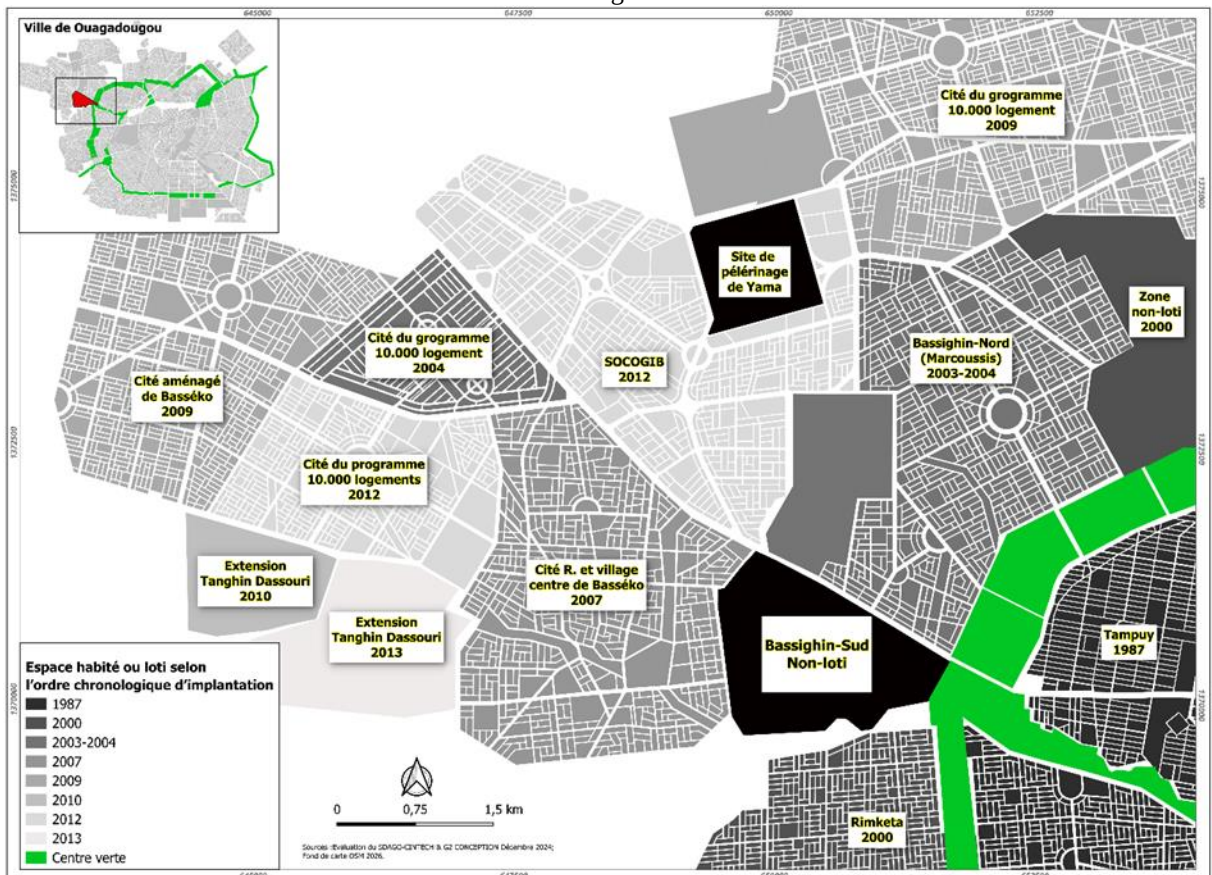
¹ La délimitation du territoire du Grand Ouaga selon l'article 2 du décret 99-270/PRES/PM/MIHU/MATS/MEE/MEF du 28 juillet 1999 portant approbation du Schéma Directeur d'Aménagement du Grand Ouaga (SDAGO) est comprise dans les limites administratives de la ville de Ouagadougou, de la province du Kadiogo et du département de Loubila (province d'Oubritenga).

Le territoire urbain de Ouagadougou dépasse les limites administratives de la commune urbaine de Ouagadougou et empiète sur le territoire du Grand Ouaga. L'urbanisation de Ouagadougou a donc dépassé ses limites administratives communales. On observe ainsi une continuité du bâti urbain entre Ouagadougou et les communes rurales limitrophes de Saaba, Pabré, Komsilga Koubri en particulier. Cette urbanisation est composée de quartiers lotis et non lotis juxtaposés. Les quartiers non-lotis sont des quartiers « précaires » (Deboulet, 2016) et populaires, aménagés par les citoyens qui ont construit leurs habitations sur des terrains obtenus auprès des possesseurs et chefs traditionnels, sans l'autorisation de l'administration publiques. Selon Guigma (2017), les quartiers non-lotis représentent 27% de l'agglomération de Ouagadougou et abritent 36% de la population urbaine.

Le quartier non loti de Bissighin est situé au nord-ouest de Ouagadougou. Il s'agit d'un ancien village périphérique qui a été rattrapé par l'urbanisation de Ouagadougou. Il occupe une superficie de 291 hectares, dont 39% est constitué d'espaces non bâtis. Les terrains non bâtis sont composés d'espaces naturels (espaces verts, vergers, etc.) et de terrains délimités (équipements de statut privé à usage collectif, propriétés privées, etc. Selon Guigma (2020), la population de Bissighin est estimée à 30.000 habitants.

Le quartier non loti Bissighin est entouré de quartiers lotis : Marcoussis au Nord a été loti en 2003, la cité relais de Basséko à l'Ouest lotie en 2002, Rimékéta au Sud a été loti en 2000 et Tampouy à l'Est a été loti en 1987 (Figure 2).

Figure 2 : Plan de situation et évolution des aménagements autour du quartier non-loti de Bissighin



Source : Plans de lotissement DGUVT. Conception : L. GUIGMA. Réalisation : A. ANKO (2026)

L'urbanisation autour de Bissighin illustré par la figure 2, indique bien que les aménagements urbains de Ouagadougou réalisés après les années 2000, ne sont pas exécutés de manière progressive et centrifuge, mais sont plutôt fragmentés et dispersés.

1.2 Méthodes de collecte et de traitement des données

La méthodologie adoptée pour cet article repose sur une analyse exploratoire mixte et multiscalaire, à partir des « enquêtes qualitatives » (Discry, 2020) réalisées par l'auteur en 2020 et par l'exploitation de données quantitatives issues des travaux de recherche et d'études urbaines. Pour ce faire, plusieurs outils méthodologiques ont été exploités dans le cadre des enquêtes qualitatives : une grille d'observation du quartier de Bissighin, une grille d'analyse d'articles de presse nationale et l'élaboration de guides d'entretiens semi-directifs avec des ménages résidant à Bissighin ainsi

qu'avec des acteurs institutionnels de Bissighin. Ces enquêtes qualitatives réalisées entre mars et septembre 2020 ont été confrontées aux résultats d'enquêtes antérieures et postérieures effectuées dans le cadre de travaux de recherche et d'expertise exécutés par l'agence PERSPECTIVE² sur les quartiers non lotis de Ouagadougou entre 2011 et 2025. L'approche privilégiée a été centrée sur le citoyen, résident du quartier non loti, afin de révéler ses perceptions et ses pratiques socio-spatiales de son espace de résidence, de son quartier et de sa ville métropolitaine de Ouagadougou mise en quarantaine entre le 27 mars et le 05 mai 2020. Le type d'enquête est précisé pour chaque niveau d'analyse, à l'échelle métropolitaine, urbaine et résidentielle.

A l'échelle métropolitaine, l'analyse s'est fondée sur les témoignages de riverains des postes de péages et de contrôle, obtenus à partir d'articles de presse nationale publiés entre mars et mai 2020. D'autres témoignages ont été recueillis auprès d'une dizaine de résidents de Bissighin interrogés entre avril et juin 2020, suivant un échantillonnage raisonné. Ces derniers témoignages ont été obtenus sur la base d'entretiens et de discussions informelles portant sur l'évolution des pratiques socio-spatiales dans les quartiers non lotis périphériques durant la pandémie de COVID-19 sur le territoire national et sur le territoire du Grand Ouaga en particulier. L'analyse croisée de ces différents témoignages a permis de renseigner les pratiques socio-spatiales des résidents dans le Grand Ouaga. Les résultats d'entretiens ont été analysés sous l'angle de la capacité des résidents à s'adapter aux mesures de distanciation physique et de réduction des déplacements ; suivant une analyse textuelle des propos des personnes enquêtées. De plus les résultats de la littérature grise ont été exploités, notamment les dynamiques foncières analysées dans le cadre de l'évaluation du Schéma directeur d'aménagement du Grand Ouaga, adopté en 2020.

A l'échelle urbaine, les résultats d'enquêtes-ménages issus des travaux antérieurs de Guigma (2017) ont été mobilisés. Ces enquêtes-ménages avaient été menées auprès de 260 résidents de trois quartiers non lotis de Ouagadougou³, dont 96 ménages de Bissighin, sélectionnés suivant un échantillonnage systématique de 4 ménages dans chacune des 24 mailles ou sous-zones délimitées dans le quartier. Elles ont fourni des données quantitatives sur les effectifs et les caractéristiques socioéconomiques des

² L'agence PERSPECTIVE est un bureau d'études d'architecture et d'urbanisme dont le siège social est à Ouagadougou et dont L. Guigma est le co-gérant. L'agence PERSPECTIVE a travaillé sur des actions d'amélioration de trois quartiers non lotis de Ouagadougou dans le cadre du Programme participatif d'amélioration des bidonvilles et sur le cadre d'intervention pour la résorption de l'habitat spontané au Burkina Faso, pour le compte de ONU Habitat et du Ministère en charge de l'urbanisme, entre 2011 et 2018.

³ Il s'agit des quartiers non lotis de Bissighin, Watinima-Noghin-Basnéré et Tengandogo

chefs de ménages, leur situation foncière, la qualité de leur habitat et leur parcours résidentiel. Ces résultats ont été confrontés aux données qualitatives issues des observations de terrains, d'une dizaine d'entretiens prolongés et de discussions informelles effectuées entre avril et septembre 2020 à Bissighin. Lors de ces échanges avec les résidents de Bissighin en 2020, des informations complémentaires ont été recueillies sur l'urbanité du quartier non loti à savoir les pratiques socio-spatiales des résidents de Bissighin en lien avec les quartiers lotis environnants et en période de COVID-19. La méthode mixte d'analyse des données quantitatives et qualitatives a été privilégiée de sorte à vérifier les données quantitatives sur la base des données qualitatives, sous la forme d'enrichissement, d'explication et de triangulation.

A l'échelle résidentielle, les résultats des entretiens de 2020 ont été exploités pour déceler les dynamiques socio-spatiales. Ces résultats d'entretiens ont été croisés avec les relevés fonciers réalisés à Bissighin en 2017 ainsi qu'avec la cartographie des acquisitions foncières de promoteurs et particuliers du Grand Ouaga produite en 2025 par les experts des bureaux d'études de CINTECH et de G2 CONCEPTION dans le cadre de l'étude d'évaluation du SDAGO d'horizon 2025, pour le compte du Ministère en charge de l'urbanisme.

Les limites méthodologiques sont liées à la fiabilité des données quantitatives : les données quantitatives disponibles étant principalement dépendantes de la littérature grise. Les résultats de cette recherche relèvent davantage de l'interprétation et de l'analyse exploratoire, plutôt que d'enquêtes statistiquement représentatives.

Cet article mobilise aussi les travaux de Jaglin et al. (2018), sur la métropolisation en Afrique ainsi les travaux de Berry-Chikhaoui (2009) sur la clarification du concept d'urbanité, en tant que processus de construction de formes urbaines, aux niveaux métropolitain, urbain et résidentiel.

2. Résultats

2.1. En 2020, la mise en quarantaine d'un nouveau territoire urbain de Ouagadougou défini par les postes de péages, pour résister au COVID-19

C'est au cours du Conseil des Ministres du 26 mars 2020 que le gouvernement burkinabé a décidé de la mise en quarantaine, à partir du 27 mars 2020, de toutes les villes du Burkina Faso ayant connu au moins un cas de COVID-19. Suite à la déclaration de la mise en quarantaine de la ville de Ouagadougou, la limite de la ville a été déterminée à partir des points de postes de péages et de contrôle, sans mentionner les limites qui relient ces points. Cette mesure a fait suite à la fermeture des frontières nationales le 21 mars et à l'arrêt des transports en commun urbains et intra-urbains le 23 mars. Quinze

villes du Burkina Faso⁴ ont été frappées par cette mesure de mise en quarantaine. Pour Ouagadougou, cette mise en quarantaine a eu pour implication l'interdiction d'entrée et de sortie de personnes à partir des postes de péages et de contrôle qui entourent Ouagadougou, ainsi que la limitation des déplacements intra-urbains au strict minimum dans la ville. Cette mesure a été de vigueur durant trente-neuf jours, du 27 mars au 05 mai 2020.

La limitation des déplacements intra-urbain a été facilitée par l'arrêt des transports en commun (autobus et taxi), la fermeture de trente-six marchés de Ouagadougou et l'option du télétravail prise par quelques travailleurs notamment ceux du secteur privé. Par contre, l'application de la mise en quarantaine de la ville de Ouagadougou a été compromise par la délimitation superficielle du territoire mis en quarantaine, occasionnant des interprétations multiples, voire contradictoires par les populations riveraines. En effet, cette délimitation ponctuelle du territoire de Ouagadougou mis en quarantaine, a ravivé la question de la considération d'un territoire cohérent de gouvernance métropolitaine, sur la base des limites administratives actuelles de la commune de Ouagadougou et de celles du territoire Grand Ouaga.

2.1.1. Un territoire compris entre les limites administratives de Ouagadougou et celles du Grand Ouaga

Le Grand Ouaga n'est pas encore une entité administrative possédant une autonomie de gestion et une structure propre de gouvernance. Chaque commune constituant le Grand Ouaga est autonome. De même, à l'échelon régional, le territoire du Grand Ouaga englobe deux régions distinctes. Le Grand Ouaga serait donc un territoire stratégique d'étude et de réflexion à l'échelle métropolitaine. Il est planifié au moyen d'un schéma directeur d'aménagement du Grand Ouaga (SDAGO) élaboré en 1999, puis révisé en 2010, avant d'être adopté en 2020. Cette difficulté d'adoption des orientations du SDAGO pourrait traduire la complexité des dynamiques urbaines et des enjeux fonciers sur ce territoire.

Le communiqué du 26 mars 2020 instaurant la mise en quarantaine des villes ayant connu au moins un cas de COVID-19, ne précisait pas les limites des territoires des villes mises en quarantaine. Selon le gouvernement, la mise en quarantaine signifie que personne n'entre ni ne sort des villes, que ce soit à moto, en voiture, ou par quelques moyens que ce soit. C'est dans un point de presse du 27 mars 2020, que le Ministre de la Communication, porte-parole du gouvernement a déclaré « *Considérez qu'au-delà des postes de péage vous n'êtes pas à Ouagadougou* ». Il ressort de ce point de presse que les délimitations des villes à considérer étaient celles matérialisées par les postes

⁴ Les quinze villes concernées sont Ouagadougou, Bobo-Dioulasso, Boromo, Houndé, Dédougou, Kongoussi, Banfora, Sindou, Manga, Zorgho, Dano, Gorom-Gorom, Falagountou, Tougouri, Nouna

de péage fonctionnels et que lorsque ces limites n'existaient pas, elles seraient définies par les autorités compétentes. La figure 3 présente les points de délimitation considérés autour de Ouagadougou.

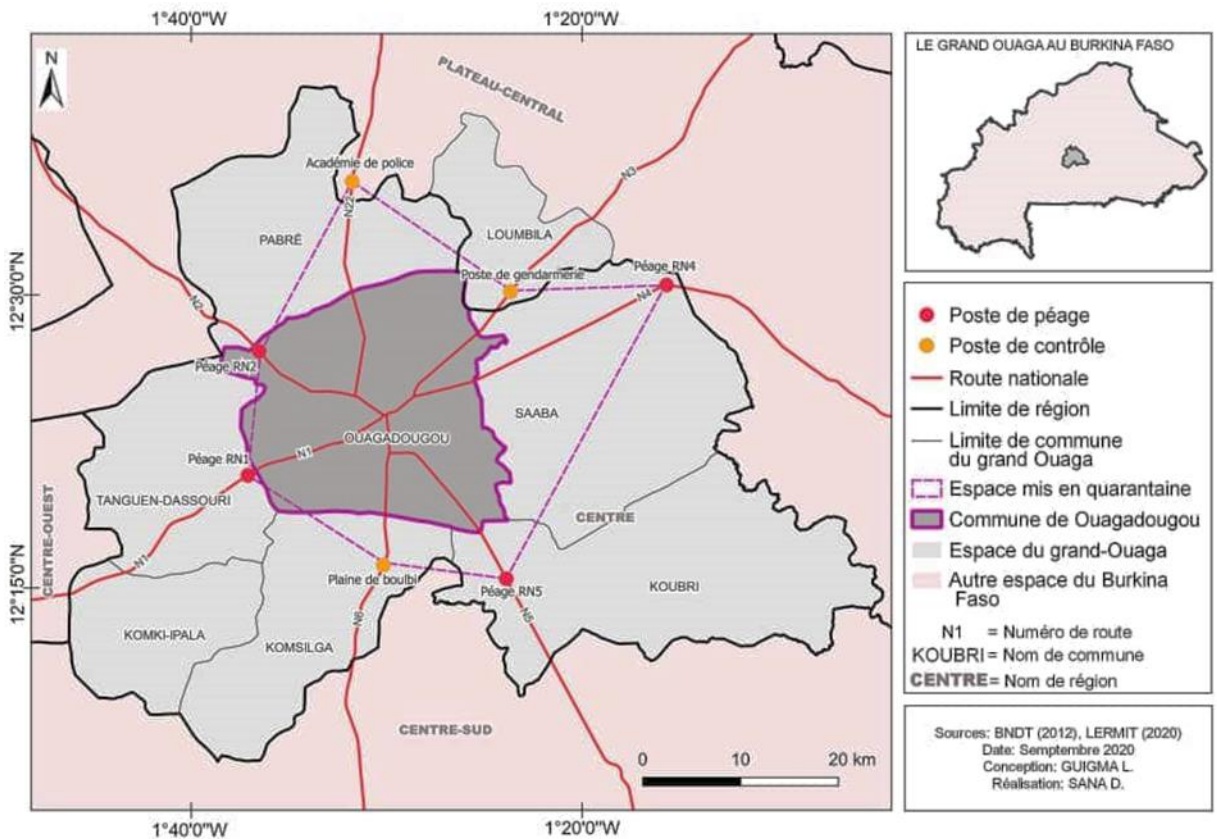


Figure 3 : Poste de péages et de contrôle délimitant Ouagadougou en 2020

L'analyse de la figure 3 montre que pour le cas de Ouagadougou, sept points ont été considérés sur chaque axe structurant ou Route Nationale (RN) reliant Ouagadougou à une autre localité riveraine. Ces points de délimitation étaient constitués de quatre postes de péages fonctionnels et de trois autres points de contrôle au niveau d'un poste de gendarmerie sur la RN 3, de l'Académie de police sur la RN 22 et de la Plaine de Boulbi sur la RN 6.

Selon notre analyse, une typologie des points selon leur localisation peut donc être dressée en trois catégories. La première catégorie concerne le poste de péage de la RN2, situé à l'intérieur des limites administratives de Ouagadougou. La deuxième catégorie regroupe les cinq postes de péages et de contrôle situés au-delà des limites administratives de Ouagadougou mais à l'intérieur des limites administratives du Grand Ouaga, précisément au sein des communes rurales de Tanghin Dassouri (RN1), Loumbila (RN2), Saaba (RN4), Koubri (RN5), Komsilga (RN6). Enfin, la troisième catégorie

concerne le poste de contrôle de l'Académie de police, situé sur la RN22 au-delà des limites administratives de Ouagadougou et de celles du Grand Ouaga. Quel est donc le périmètre de la ville de Ouagadougou mis en quarantaine ?

2.1.2 Un territoire imaginaire entre des postes de péages et de contrôle

La détermination des points limites sur les axes structurants reliant Ouagadougou aux localités voisines n'a pas constitué une délimitation suffisante pour définir un périmètre de mise en quarantaine. Comment relier les différents postes de péages et de contrôle entre eux ? La figure 4 suivante présente la liaison des postes de péages et de contrôle autour de Ouagadougou, en guise de périmètre de Ouagadougou mis en quarantaine.

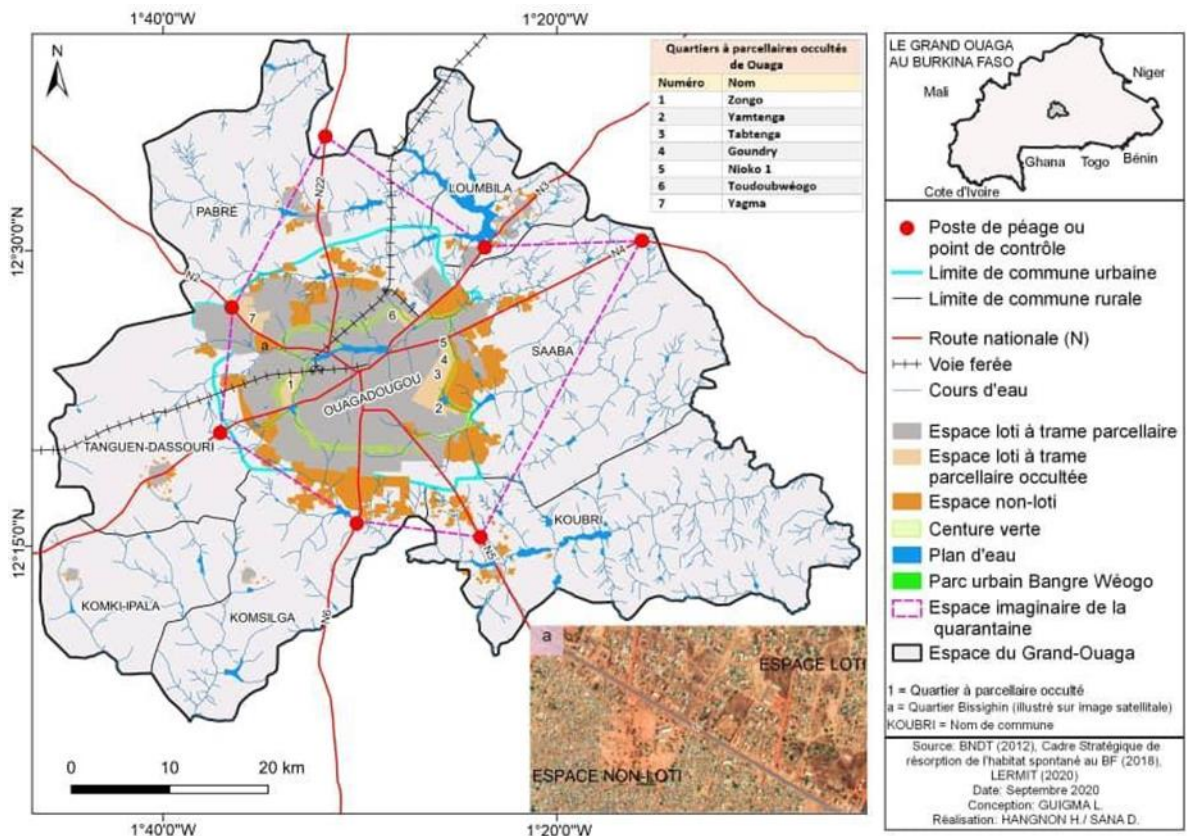


Figure 4 : Espaces habités lotis et non lotis du Grand Ouaga

Ces limites floues de Ouagadougou mis en quarantaine, n'ont pas été sans incidence sur les perceptions spatiales des habitants. En effet, il a été constaté des protestations de personnes résidant à moins de cinq kilomètres du

poste à péage, dans les noyaux urbains de Koubri⁵, de Loumbila ou de Tanghin Dassouri. Elles ont considéré que leur lieu de résidence était compris dans le territoire de Ouagadougou mis en quarantaine, à l'intérieur duquel elles pouvaient aisément se mouvoir.

A l'opposé, il a été relevé des contestations des résidents de la commune rurale de Saaba, incluse dans le périmètre de Ouagadougou mis en quarantaine et délimité à partir du poste de péage de la RN4. Ces résidents de Saaba ont refusé que soit enterré sur le territoire de la commune rurale de Saaba, un des leurs qui a été contaminé de COVID-19 et qui est décédé sur le territoire de Ouagadougou. Selon les populations de Saaba, en application de la mise en quarantaine de Ouagadougou, son corps ne devrait pas être ramené à Saaba, car il risquerait de propager la maladie (Allafrica, 2020). D'où le questionnement sur la perception territoriale de certains habitants face à l'étendue du territoire de Ouagadougou à risque, devant être mis en quarantaine.

Ces deux illustrations montrent que les habitants de la banlieue de Ouagadougou, constituée des quartiers non lotis périphériques à cheval entre la commune urbaine de Ouagadougou et les communes rurales limitrophes, ont instrumentalisé leurs situations géographiques à la faveur de la délimitation floue du territoire de Ouagadougou mis en quarantaine. Certains habitants se sont considérés comme appartenant au territoire du Grand Ouaga mis en quarantaine mais à l'intérieur duquel ils pouvaient aisément se mouvoir, alors que d'autres se sont démarqué du territoire administratif de Ouagadougou exclusivement mis en quarantaine et se sont considéré comme étant à l'écart de ce territoire à risque.

Exceptionnellement, des laissez-passer avaient été établis par le Gouverneur de la région du Centre, pour permettre à certaines personnes devant impérativement se déplacer pour des raisons d'urgence professionnelles ou sanitaires, de le faire. Le gouvernement avait également pris des mesures pour garantir la mobilité des véhicules transportant des marchandises, malgré la mise en quarantaine de certaines villes. Des témoignages de résidents de Bissighin ont révélé que des personnes se camouflaient dans des camions transportant des marchandises, afin de tromper la vigilance des contrôleurs et de pouvoir ainsi traverser des territoires de villes mises en quarantaine.

Un résident de Bissighin interrogé le 1^{er} avril nous a confié qu'il se rendrait en motocyclette à Dédougou, le lendemain, ville située à 232 km au nord-ouest de Ouagadougou, malgré la mise en quarantaine de Ouagadougou.

⁵ Lire Lefaso.net, « Mise en quarantaine de Ouagadougou : La mesure passe difficilement à Kouba », sur la Route nationale N°5, <https://lefaso.net/spip.php?article95845> publié le 30 mars 2020

En moto, je n'emprunte pas beaucoup les voies bitumées mais plutôt les sentiers. Mais les contrôleurs font de plus en plus de patrouilles et sont également postés sur des sentiers. A l'approche d'un poste de contrôle, un passant va me prévenir. Je perce donc l'un de mes roues et je pousse mon engin. J'explique au policier que je suis riverain du prochain village, que mon pneu est crevé et que je suis à la recherche d'un vulcanisateur pour coller ma roue et rentrer chez moi. Si je trouve un vulcanisateur au bord de la route, il arrange mon pneu et je continue mon trajet en moto. Je fais ainsi jusqu'à arriver à destination.

Tous les résidents de Bissighin interrogés en 2020, ont confirmé que des chemins existent pour quitter le territoire de Ouagadougou, tout en évitant les postes de péage et de contrôle. La mise en quarantaine de Ouagadougou par les autorités publiques a donc engendré plusieurs stratégies d'adaptation et de contournement de cette mesure, par des citoyens du Grand Ouaga.

2.2 En 2021, le démarrage de chantiers de déplacement de postes de péages dans le Grand Ouaga

2.2.1 De nouveaux postes de péages aux limites et au-delà du territoire du Grand Ouaga

Les déconvenues révélées par le positionnement de certains péages ont conduit les autorités à déplacer le péage de l'Ouest, sur la route nationale N°1 et le péage à l'Est, sur la route nationale N°4. Démarrés en 2021, c'est le 18 octobre 2025 qu'ont été officiellement inaugurés, le poste de péage moderne de Boudtenga dans la commune de Saaba, à l'Est du Grand Ouaga et le poste de péage de Tintilou dans la commune de Komki Ipala, à l'Ouest du Grand Ouaga. Les péages de Tintilou et Boudtenga sont modernes, dans ce sens qu'ils sont automatisés et équipés de dispositifs de vidéosurveillance. La figure 5 présente la nouvelle configuration des postes de péages du Grand Ouaga en 2024.

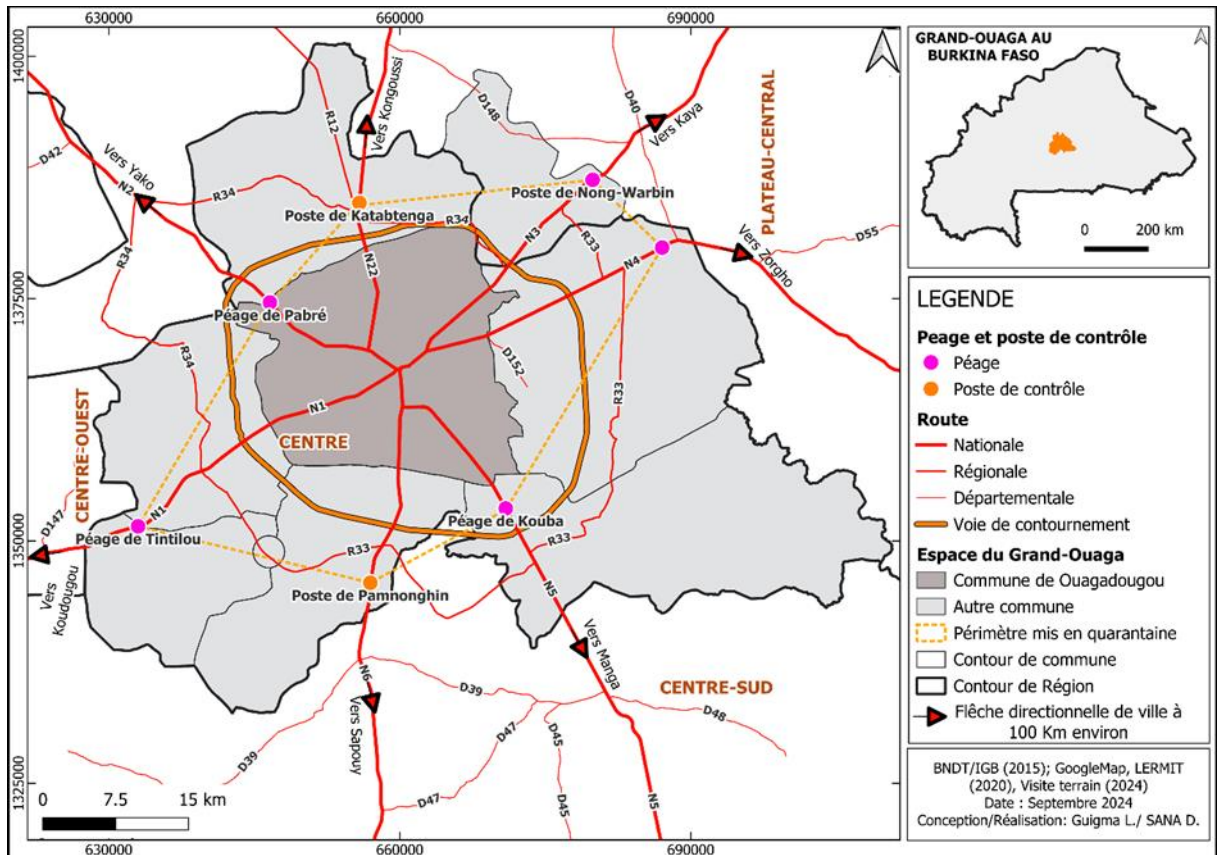


Figure 5 : Configuration des péages et postes de contrôle routiers du Grand Ouaga en 2024

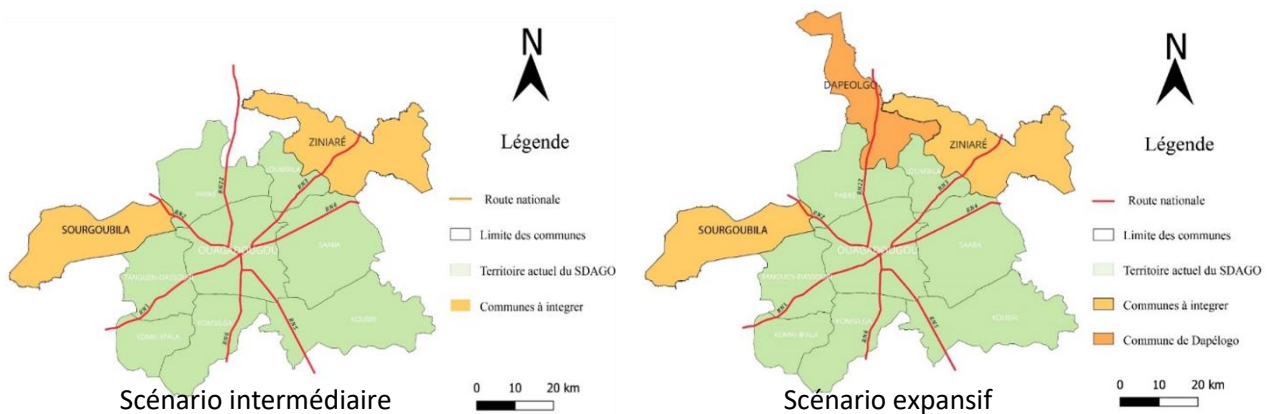
Selon nos investigations, comparativement à l'implantation des postes de péage et de contrôle de 2020, la configuration de 2024 révèle des maintiens et des déplacements de positions. En effet, le péage de Boudtenga qui était situé à l'extrémité de la commune de Saaba a été reconstruit au même endroit à l'Est du Grand Ouaga. Par contre, le péage de Tintilou a été déplacé de Tanghin Dassouri (commune limitrophe de Ouagadougou) à Komki-Ipala (commune limitrophe de Tanghin Dassouri) à l'Ouest. Cet éloignement du péage de l'Ouest du Grand Ouaga est un signe que l'ensemble de la commune de Tanghin Dassouri est en voie de conurbation urbaine avec Ouagadougou. Un autre poste de péage au Nord-Ouest à Nong-Warbin est en cours de construction et est situé dans la commune de Ziniaré, hors des limites actuelles du Grand Ouaga.

Tout cela démontre la complexité de définir un territoire urbain de Ouagadougou, sans prendre en compte le territoire métropolitain du Grand Ouaga et la complexité de définir un territoire métropolitain homogène.

2.2.2 Les tentatives de reconfiguration du territoire du Grand Ouaga

L'étude d'évaluation du SDAGO (MHU, 2025) envisage trois scénarios pour la redéfinition du périmètre du Grand Ouaga : un « scénario minimaliste » qui maintient le périmètre actuel, un « scénario intermédiaire » qui intègre les communes de Ziniaré et de Sourgoubila, puis un « scénario expansif » qui intègre en plus des communes de Ziniaré et de Sourgoubila, la commune de Dapéologo (Figure 6).

Figure 6 : Intégration des communes de Ziniaré, de Sourgoubila (scénario intermédiaire) et de Dapéologo (scénario expansif) dans le Grand Ouaga



Source : CINTÉCH & G2 CONCEPTION (MHU, 2025)

L'intégration de Ziniaré et de Sourgoubila, objet du scénario intermédiaire de reconfiguration du Grand Ouaga, se justifierait de fait, par le passage de l'axe structurant de la route nationale N°3 à Ziniaré et de la route nationale N°2 à Sourgoubila, entraînant une continuité urbaine entre le Grand Ouaga et ces communes limitrophes. Mais l'intégration de Dapéologo en plus de Ziniaré et de Sourgoubila, en guise de scénario expansif de reconfiguration du Grand Ouaga, se justifierait par la présence du futur aéroport international de Donsin sur cette commune limitrophe du Grand Ouaga. Dans cette logique, il conviendrait de définir des critères d'urbanité et de questionner la pertinence d'intégrer chacune des communes limitrophes de l'actuel Grand Ouaga, dans le futur Grand Ouaga.

Toutes ces deux reconfigurations territoriales du Grand Ouaga se caleraient sur l'adjonction de territoires communaux, conformément à leur découpage administratif et non conformément à une dynamique territoriale homogène, définie par cercles concentriques autour du noyau urbain de Ouagadougou ou sous forme radiale le long des axes structurants du Grand Ouaga. Selon nos analyses, la délimitation du territoire du Grand Ouaga devrait concilier des territoires administratifs de gouvernance territoriale ainsi que des dynamiques socio spatiales actuelles et futures localisées.

2.3. Des pratiques foncières multiscalaires dans le Grand Ouaga

2.3.1. *La référence à l'ilot, comme échelle de confinement responsable dans le quartier non-loti*

Le confinement total, où chaque ménage serait cloîtré dans sa résidence privée, est inimaginable par les résidents du quartier non loti de Bissighin. En effet, il n'existe pas toujours de délimitations physiques des possessions foncières des ménages dans les quartiers non lotis. Plusieurs ménages de Bissighin partagent des espaces communs au sein d'un ilot. Ces cours communes se prolongent et se confondent souvent avec les ruelles enchevêtrées qui bordent ou qui transpercent certains ilots, pour desservir quelques terrains enclavés. Dans ces conditions, un groupe de résidents a désigné une responsable au sein de leur zone d'habitations non loties à Bissighin. C'est cette dernière qui s'occupait de la sensibilisation et de la surveillance des mouvements des résidents de l'ilot résidentiel, notamment ceux des femmes et des enfants. « *Vous voyez ce groupe de gens (assis devant un étal de légumes), leur rayon de mouvement est désormais réduit, ils sont entre ici et la maison* », nous a confié un résident de Bissighin en 2020. Cette pratique locale a été une mise en œuvre adaptée de la réduction des déplacements, préconisée par le gouvernement.

En observant le quartier non loti de Bissighin en 2020, on pouvait s'inquiéter de voir une certaine proximité entre les jeunes hommes et garçons jouant aux cartes ou aux dames, au football, ou échangeant autour du « grin » de thé. Cette même proximité a été observée chez les fillettes, les jeunes filles et les dames papotant autour du commerce de proximité au bord des ruelles ou des bornes fontaines. Cette proximité serait le signe d'une certaine convivialité et fraternité, comme le sont les membres d'une même famille. Par contre, une prudence plus grande a été observée par les résidents du quartier vis-à-vis des « étrangers », visiteurs du quartier qui étaient immédiatement reconnus par les habitants du non-loti.

Les résidents ne s'étaient donc pas confinés par résidence individuelle, mais par ilot ou zone de résidence, en espérant que le virus de COVID-19 ne pénétrait pas leur zone de confinement responsable.

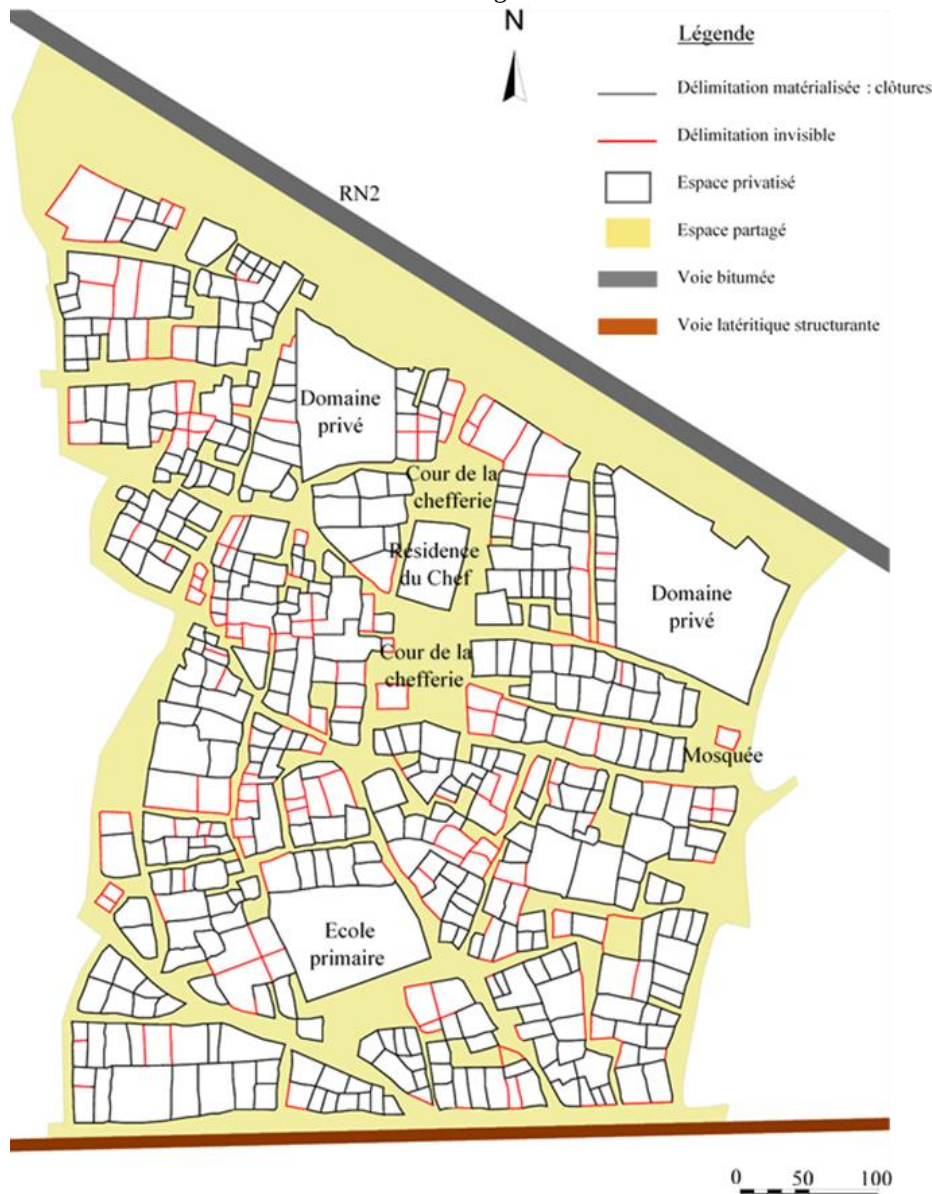
2.3.2 *Morcellements fonciers dans les quartiers non lotis*

En parcourant le quartier, un nouveau visiteur de Bissighin n'est pas en mesure de déceler les morcellements de terrain non lotis, opérés dans le quartier. Au-delà des délimitations de terrains matérialisées par des murs de clôture, il existe des morcellements internes invisibles qui participent au processus de marchandisation foncière dans le quartier non loti. Ces morcellements non visibles s'inscrivent dans une stratégie de régularisation foncière attendue par les occupants. Cette régularisation foncière souhaitée par les résidents consisterait à recenser les ménages résidants et leurs

occupations, en vue de la restructuration urbaine du quartier. Suite à cette régularisation foncière, les résidents pourraient alors bénéficier de parcelles et de titres de jouissance en toute légalité.

La figure 7 présente les récentes délimitations invisibles de terrain, marques d'individualisation foncière qui contrastent avec l'esprit initial de regroupement communautaire autour des blocs d'ilots, renoué à la faveur de la pandémie de COVID-19.

Figure 7 : Délimitations des possessions foncières autour de la cour de la chefferie de Bissighin



Source : Guigma (2017), Relevé de terrain, août 2015. Réalisation : Guigma (2016)

Accaparements fonciers dans le Grand Ouaga

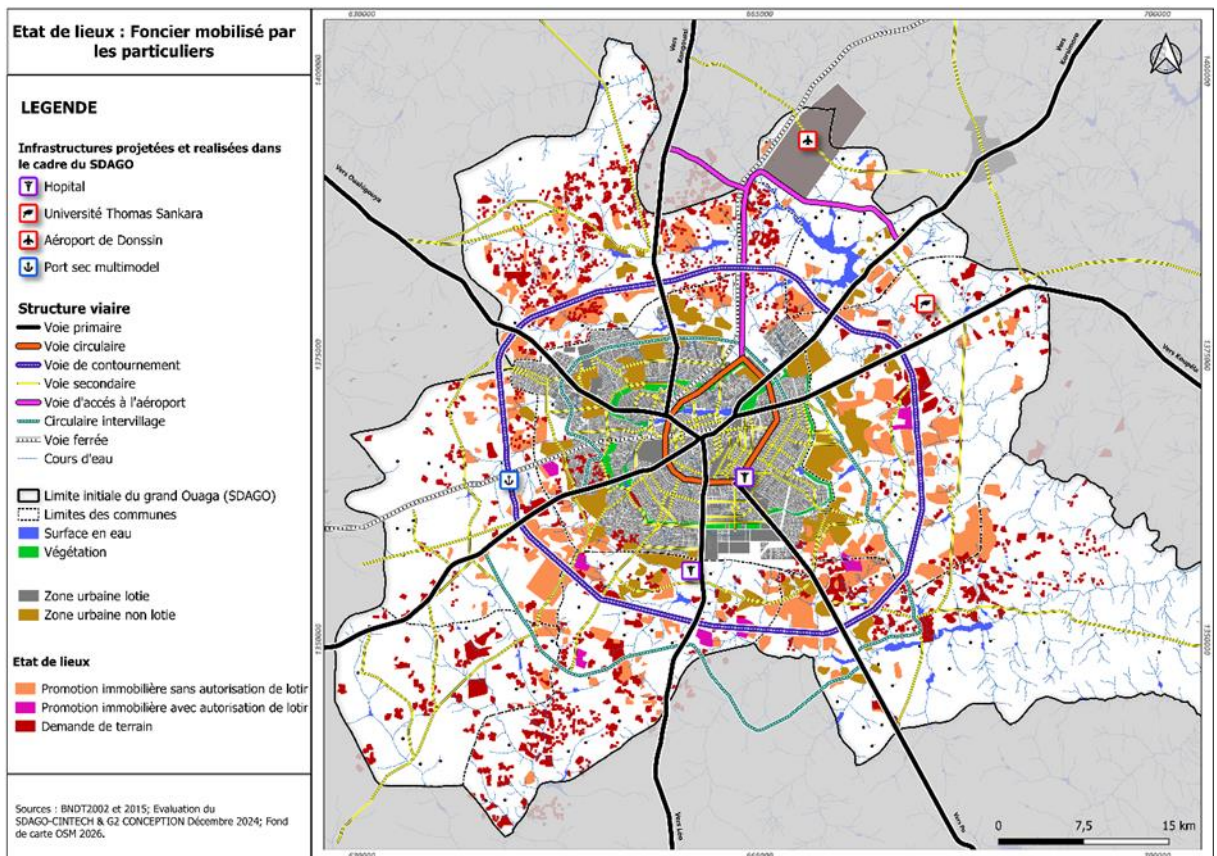
Selon nos investigations, la tache urbaine de Ouagadougou est passée de 51 000 ha en 2019 à 53 336 en 2025, soit une extension moyenne de 390 ha par an. Bien qu'importante, cette croissance urbaine continue et visible autour du noyau principal de Ouagadougou, cache une croissance dispersée au sein des communes limitrophes de Ouagadougou, à la fois par la densification et l'accroissement du non loti, que par l'accaparement de terrains par des promoteurs immobiliers et des particuliers.

Selon le Schéma régional d'aménagement et de développement durable du territoire de la Région du Centre, la densité du Grand Ouaga est passée de 566 hab/km² en 2008, à 929 hab/km² 2029 et à 1 133 hab/km² en 2023, soit presque un doublement de la densité urbaine en 15 ans (Ministère de l'Economie et des Finances, 2022).

Selon les experts de CINTECH et G2 CONCEPTION qui ont réalisé l'étude d'évaluation du SDAGO pour le compte du Ministère de l'urbanisme et de l'habitat, de 2008 à 2023 soit en 15 ans, les promoteurs immobiliers ont ainsi mobilisé 30 560 ha, soit l'équivalent de la superficie de la commune de Ouaga constituée en 40 ans, entre 1965 et 2005. A titre indicatif, dans la seule commune de Saaba appartenant au Grand Ouaga, 4 500 ha de foncier ont été mobilisés par les promoteurs immobiliers. De nombreuses demandes de terrains formulées par des particuliers ont été enregistrées par différentes directions régionales de l'urbanisme, entre 2008 à 2023. Ces demandes sont au nombre de 1 497 pour une superficie de 2 966 ha (Ministère de l'urbanisme et de l'habitat, 2025).

La figure 8 présente le foncier mobilisé par les particuliers et les promoteurs immobiliers dans le Grand Ouaga entre 2008 et 2023.

Figure 8 : Foncier mobilisé par les particuliers et les promoteurs immobiliers



Source : CINTECH & G2 CONCEPTION (Ministère de l'urbanisme et de l'habitat, 2025).

Réalisation : Anko (2026)

En guise d'interprétation, la figure 8 montre bien que dans leur grande majorité, ni les demandes de terrains des particuliers, ni les opérations de promotion immobilière ne sont en conformité avec les orientations du SDAGO, car implantées majoritairement dans des zones non destinées à l'urbanisation et sans autorisation de lotir. La grande mobilisation foncière de terrains par les promoteurs immobiliers est destinée à l'aménagement et à la vente de parcelles aux particuliers en vue de l'autopromotion de leurs habitations. De même, les demandes de terrain des particuliers concernent la construction de magasins de stockage, la création de fermes ou d'établissement d'enseignement et sont sans corrélation avec les prévisions spatiales et fonctionnelles du SDAGO.

Selon la même source du Ministère de l'urbanisme et de l'habitat (2025), 85% des opérations immobilières du Grand Ouaga ne disposent pas d'autorisation de lotir, comme le montre la figure 8. Les promoteurs immobiliers, se sont intéressés aux terrains du Grand Ouaga mais aussi aux

terrains des communes rurales limitrophes au Grand-Ouaga. Ainsi une importante superficie de terres de 5 913, 27 ha dans des communes de Kombissiri, de Kokologho, de Dapélogo, de Bingo, de Doulougou et de Saponé a également été mobilisée en vue de la promotion immobilière, ce qui souligne bien que l'ampleur et l'enjeu de cette problématique va au-delà des limites territoriales actuelles du Grand Ouaga.

3. Discussion

3.1 La confrontation du périmètre des nouveaux péages avec celui des transactions foncières du Grand Ouaga

Les résultats obtenus démontrent que l'implantation, puis le déplacement des postes de péage ainsi que les dynamiques foncières ne constituent pas de simples ajustements techniques ou économiques, mais agissent comme de véritables révélateurs des nouvelles frontières fonctionnelles du Grand Ouaga. En révélant une superposition entre l'aire d'intensification des transactions foncières et le périmètre dessiné par les nouveaux péages, cette recherche confirme que la métropolisation ouagalaise s'opère par une appropriation spatiale devançant largement la planification officielle.

Ces constats s'inscrivent dans la continuité des travaux sur la métropolisation par « le bas » (Jaglin et al., 2018) en Afrique de l'Ouest, lesquels soulignent le rôle prépondérant des acteurs privés et informels dans la fabrication des périphéries urbaines. Tout comme dans des métropoles comparables telles que Bamako ou Niamey, l'extension de l'espace bâti à Ouagadougou est fortement guidée par une spéculation foncière anticipative. Toutefois, la spécificité de notre démarche réside dans la mobilisation de repères dits « atypiques » : alors que la plupart des travaux prospectifs privilégient la densité démographique ou la continuité du bâti pour fixer les limites métropolitaines, il est démontré que la mobilité tarifée, via les péages et la pression marchande sur les terres périurbaines et rurales fournissent des indicateurs plus réactifs pour appréhender les franges périurbaines en constante mutation.

Il convient néanmoins de nuancer ces résultats en soulignant une limite méthodologique : l'analyse des transactions foncières repose en partie sur des flux transactionnels sous-seing privé, parfois difficiles à quantifier de manière exhaustive face à la rétention d'informations par les promoteurs immobiliers. Malgré cette contrainte, cette grille de lecture novatrice offre une portée pratique déterminante pour l'aménagement du territoire. Elle invite à dépasser les découpages administratifs rigides au profit de périmètres de gestion métropolitaine plus fluides, capables d'anticiper la régulation des usages du sol et la desserte en infrastructures avant la saturation du tissu urbain.

3.2 L'analyse multiscale des reconfigurations territoriales du Grand Ouaga

L'analyse des reconfigurations spatiales et des pratiques socio-spatiales des citadins a porté sur trois niveaux territoriaux : l'aire métropolitaine du Grand Ouaga, le quartier urbain et l'ilot résidentiel.

Sur l'aire métropolitaine du Grand Ouaga, l'imprécision de la délimitation du périmètre de la ville mise en quarantaine par les autorités publiques a occasionné des interprétations contradictoires et des stratégies de contournement de la mesure par les citadins. De plus, la tentative de délimitation du territoire urbain de Ouagadougou à travers les postes de péages, puis le déplacement de certains postes de péage l'année suivante, témoignent de la complexité de délimiter les périmètres urbains et de la nécessité d'appréhender le périmètre urbain de Ouaga en lien avec le périmètre métropolitain du Grand Ouaga. Notons que l'Afrique, excepté Johannesburg, a été longtemps exclue des métropoles du monde dans la littérature scientifique jusqu'à la fin des années 2000 (Jaglin et al., 2018). Pourtant, cette métropolisation de Ouagadougou est également perceptible au sein des autres « villes-capitales » de l'Union économique et monétaire ouest africaine (UEMOA) que Dossou et Danvidé (2021) qualifient toutes de « métropoles », tout en évoquant la nécessité de créer des « métropoles d'équilibre » pour de meilleures armatures urbaines nationales et sous-régionale de l'Union.

Au niveau des quartiers urbains situés à la périphérie de Ouagadougou, il a été constaté une densification et organisation spatiale, non pas à l'échelle individuelle du terrain non loti, mais à l'échelle collective de l'ilot. Les espaces ruraux autour de Ouagadougou ont fait l'objet d'accaparements fonciers par les promoteurs immobiliers et des particuliers en vue d'investissements urbains. En effet, « le territoire administratif de Ouagadougou a été incapable de satisfaire la forte demande de parcelles provenant à la fois des résidents et non-résidents des zones non loties de la ville » (Guigma et al., 2015). Ces acquisitions foncières pour la plupart informelles, ont contribué à la « rurbanisation » (Salenson, 2020) ou à la « bidonvilisation généralisée du Grand Ouaga » (Guigma, 2026) et gagneraient à être mieux encadrées par la puissance publique. Certains auteurs comparent cette urbanisation à constitution de « villages urbains » (Rossier et al., 2012) et faisant référence à une « métropole-village(s) » (Mama Awal, 2015). D'autres qualifient plutôt cette urbanisation d'« incrémentale » (Clerc et al., 2017) ou de « diffuse », visible notamment le long des axes routiers structurants et comparable à celle du corridor Abidjan-Lagos, décrite par Choplin (2019).

A l'échelle résidentielle, il convient de noter que les dynamiques de regroupement communautaire des riverains d'un quartier non loti, autour des îlots d'habitation pour faire face à la pandémie, contrastent avec la logique de

marchandisation foncière autour des terrains individuels non-lotis, à travers leur morcellement et leur vente.

De ces trois niveaux territoriaux d'analyse, il ressort que les allusions de « marginalité » (Perlman, 2016) accolées aux quartiers non-lotis par certaines autorités publiques et techniciens peuvent donc être réfutées.

Ainsi la mise en œuvre des mesures de lutte contre la propagation de la pandémie de COVID-19 à Ouagadougou a révélé la pertinence de nouvelles configurations territoriales et pratiques socio-spatiales des citadins. L'opportunité du territoire métropolitain du Grand Ouaga comme espace de gouvernance territoriale s'est posée, la considération d'une périphérie urbaine de Ouagadougou, sans distinction des quartiers lotis et non lotis a été confirmée et la pertinence d'un espace résidentiel d'auto-confinement, qui ne serait ni l'habitation ni le terrain non-loti individuel, mais plutôt l'ilot résidentiel, a été révélé. C'est donc un « confinement responsable » (Guigma, 2020) par zone ou blocs d'ilots, qui est mis en œuvre dans le quartier non-loti de Bissighin. Cette organisation socio spatiale collective a inspiré déjà plusieurs projets contemporains d'aménagements urbains, dont celui du renouvellement urbain de la Zone d'activités administratives et commerciales de Ouagadougou, structuré par le passage d'un « urbanisme à la parcelle » à un « urbanisme à l'ilot » (Pierre Louis, 2005).

Conclusion

La présente recherche s'inscrit dans le contexte des mutations urbaines rapides qui caractérisent la capitale burkinabè et sa périphérie. Son objectif principal est d'analyser les dynamiques socio-spatiales pour appréhender les nouvelles configurations et limites territoriales du Grand Ouaga à trois échelles d'observation : le quartier (notamment résidentiel), la ville de Ouagadougou et l'espace métropolitain élargi. Pour ce faire, la recherche s'est appuyée sur trois entrées d'analyse : l'impact de la tentative de confinement durant la pandémie de COVID-19 dans les quartiers non lotis, les dynamiques d'implantation et de déplacement des péages routiers, ainsi que la pression foncière exercée par les promoteurs immobiliers et les particuliers.

Les résultats soutiennent l'hypothèse centrale de la recherche : la délimitation d'un périmètre pertinent pour la prospective métropolitaine du Grand Ouaga s'avère particulièrement complexe. Néanmoins, l'analyse montre que des repères atypiques permettent d'en tracer les nouvelles frontières fonctionnelles. En particulier, l'aire d'intensification des transactions foncières et la localisation des nouveaux postes de péage émergent comme des marqueurs spatiaux essentiels pour saisir la portée réelle de l'étalement urbain.

D'un point de vue socioéconomique, ces constats mettent en lumière plusieurs implications majeures sur le plan spatial et sur le plan social. Sur le

plan spatial et économique, la spéculation foncière galopante redéfinit les limites de la métropole et intègre de fait des espaces ruraux périphériques dans le marché urbain, modifiant l'économie locale et la valeur des terres. Sur le plan social et fonctionnel, le déplacement des péages et les contraintes de mobilité, illustrées lors des restrictions sanitaires, recomposent les imaginaires urbains et transforment la nature des flux quotidiens.

Dans la lutte contre la pandémie de COVID-19, il convient de remarquer la forte réactivité des autorités publiques burkinabè à prendre des décisions courageuses et impopulaires comme la mise en quarantaine de la capitale, avec le risque qu'elle ne soit pas immédiatement opérationnelle en raison de son imprécision territoriale ainsi que la capacité d'adaptation des citoyens face à ces mesures quelquefois drastiques. Comme nous y invitent L. Vidal et al. (2020), la mise en œuvre de la riposte contre la pandémie de COVID-19 à Ouagadougou appelle au dépassement d'un certain afro-pessimisme qui prévaut dans de nombreuses analyses de cette crise sanitaire. Même si, au-delà du risque sanitaire, les conséquences économiques et sociales de COVID-19 sont sévères, il importe d'identifier les leviers sur lesquelles de nouvelles dynamiques socio-spatiales peuvent s'appuyer. Il s'agit de penser l'Afrique, comme une source d'innovations (Nubukpo et al, 2020), y compris celle émanant des populations les plus vulnérables, résidant dans les quartiers dits précaires.

Au regard de ces enseignements, plusieurs recommandations s'imposent pour accompagner le développement métropolitain : la redéfinition des critères de délimitation territoriale, l'encadrement du marché foncier, ainsi que l'adaptation des politiques d'aménagement du territoire à l'échelle métropolitaine élargie, pour mieux répondre aux pratiques et besoins réels des citoyens.

Conflit d'intérêts : L'auteur a déclaré n'avoir aucun conflit d'intérêts.

Disponibilité des données : Toutes les données figurent dans le corps de l'article.

Déclaration de financement : L'auteur n'a bénéficié d'aucun financement pour cette recherche.

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Regards des acteurs sur les déterminants des comportements déviants des jeunes initiés au Poro et au Dozoya à Niellé (Côte d'Ivoire)

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[Doi:10.19044/esj.2026.v22n23p149](https://doi.org/10.19044/esj.2026.v22n23p149)

Submitted: 24 March 2026

Accepted: 13 August 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Konate, S. (2026). *Regards des acteurs sur les déterminants des comportements déviants des jeunes initiés au Poro et au Dozoya à Niellé (Côte d'Ivoire)*. European Scientific Journal, ESJ, 22 (23), 149. <https://doi.org/10.19044/esj.2026.v22n23p149>

Résumé

Cette recherche analyse les regards des acteurs sur les déterminants des comportements déviants chez les jeunes initiés au Poro et au Dozoya à Niellé, dans le nord de la Côte d'Ivoire. Ces institutions socioculturelles sénégalaises, fondées sur la transmission des valeurs, la formation des jeunes et la cohésion sociale, sont aujourd'hui confrontées à l'émergence de conduites contraires aux normes établies, telles que le braconnage, les dégradations de biens, les menaces ou l'irrespect envers les aînés. L'étude vise à identifier les facteurs explicatifs de ces comportements et à mesurer l'influence des caractéristiques socio-démographiques sur leur manifestation. Elle adopte une approche mixte combinant un questionnaire administré à 70 participants (jeunes initiés, initiateurs, parents et chefs coutumiers), des observations de terrain et des entretiens semi-directifs réalisés auprès de 49 participants directement impliqués dans les institutions initiatiques. Les données qualitatives issues des 49 entretiens ont été soumises à une analyse thématique, tandis que les données quantitatives recueillies auprès des 70 participants ont été analysées à l'aide de statistiques descriptives et inférentielles (χ^2 de Pearson et V de Cramér). Les résultats révèlent que les principaux déterminants sont la fragilisation de l'encadrement familial (84,3 %), l'influence des réseaux sociaux (78,6 %), des groupes de pairs (74,3 %), la pauvreté et le chômage (57,1 %), ainsi que l'affaiblissement du rôle éducatif du Poro et du Dozoya.

(42,9 %). L'analyse statistique révèle une association très forte entre le type d'initiation et les formes de déviance observées ($\chi^2 = 41,40$; ddl = 1 ; $p < 0,001$; V de Cramér = 0,960). L'étude conclut que la déviance juvénile résulte d'une combinaison de facteurs socioéconomiques, familiaux, relationnels et institutionnels, soulignant la nécessité d'une synergie entre traditions, famille, école et institutions publiques pour renforcer la socialisation et prévenir les comportements déviants.

Mots-clés : Comportements déviants ; jeunes initiés ; Poro ; Dozoya ; déterminants ; socialisation ; contrôle social ; Niellé ; Côte d'Ivoire

Stakeholders' Perceptions of the Determinants of Deviant Behaviors among Young Initiates of the Poro and Dozoya in Niellé (Côte d'Ivoire)

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Abstract

This study examines stakeholders' perceptions of the determinants of deviant behaviors among young initiates of the Poro and Dozoya in Niellé, northern Côte d'Ivoire. These Sénoufo sociocultural institutions, traditionally founded on the transmission of values, youth education, and social cohesion, are increasingly confronted with the emergence of behaviors that contravene established social norms, including poaching, property damage, threats, and disrespect toward elders. The study aims to identify the factors underlying these behaviors and to assess the influence of socio-demographic characteristics on their occurrence. A mixed-methods approach was adopted, combining a questionnaire administered to 70 participants (young initiates, initiators, parents, and traditional leaders), field observations, and semi-structured interviews conducted with 49 participants directly involved in the initiatory institutions. Qualitative data derived from the 49 interviews were analyzed using thematic analysis, whereas quantitative data collected from the 70 participants were examined through descriptive and inferential statistical analyses (Pearson's χ^2 test and Cramer's V coefficient). The findings indicate that the principal determinants of deviant behaviors are the weakening of family supervision (84.3%), the influence of social media (78.6%), peer group influence (74.3%), poverty and unemployment (57.1%), and the declining educational role of the Poro and Dozoya institutions (42.9%). Statistical

analysis revealed a very strong association between the type of initiation and the forms of deviance observed ($\chi^2 = 41.40$; $df = 1$; $p < 0.001$; Cramer's $V = 0.960$). The study concludes that juvenile deviance results from the interaction of socioeconomic, familial, relational, and institutional factors, underscoring the need for greater synergy among traditional institutions, families, schools, and public authorities to strengthen socialization processes and prevent deviant behaviors.

Keywords: Deviant behaviors; young initiates; Poro; Dozoya; determinants; socialization; social control; Niellé; Côte d'Ivoire

1. Introduction

Les comportements déviants des jeunes constituent une préoccupation majeure dans de nombreuses sociétés en raison de leurs répercussions sur la cohésion sociale, la sécurité et le développement. En Afrique subsaharienne, ils s'inscrivent dans un contexte de profondes mutations socioéconomiques, culturelles et institutionnelles qui fragilisent les mécanismes traditionnels de socialisation. Les difficultés d'insertion économique, les transformations familiales, l'urbanisation, l'influence croissante des médias numériques et l'affaiblissement des autorités coutumières contribuent à modifier les repères normatifs des jeunes et favorisent l'émergence de nouvelles formes de déviance.

En Côte d'Ivoire, ces mutations affectent particulièrement les communautés rurales où les institutions initiatiques jouent traditionnellement un rôle central dans la transmission des valeurs, l'encadrement moral et la régulation sociale. Chez les Sénoufo du nord du pays, le Poro et le Dozoya constituent des cadres privilégiés de socialisation, assurant l'éducation civique, le respect des normes communautaires, la solidarité intergénérationnelle et la prévention des comportements socialement répréhensibles. Comme le souligne Ouattara (2004), les processus contemporains de modernisation transforment progressivement les modes traditionnels de socialisation des jeunes en milieu sénoufo, en favorisant la coexistence de référents culturels parfois divergents. Dans cette dynamique, les transformations économiques, les migrations, l'ouverture culturelle, l'affaiblissement des solidarités communautaires et l'influence croissante des réseaux sociaux semblent avoir réduit la capacité d'encadrement des institutions initiatiques, exposant davantage les jeunes à des systèmes de valeurs parfois contradictoires et à des comportements déviants.

La littérature montre que la déviance juvénile résulte d'une interaction complexe de facteurs individuels, sociaux et institutionnels. La théorie de l'anomie de Merton (1938) souligne le rôle des inégalités socioéconomiques, tandis que Hirschi (2022) met en évidence l'importance des liens sociaux dans

la prévention de la déviance. Becker (1963) insiste, quant à lui, sur les processus d'étiquetage participant à la construction sociale des comportements déviants. Plus récemment, plusieurs études menées en Afrique ont identifié la pauvreté, le chômage, la fragilisation de la famille, l'influence des groupes de pairs et les mutations des institutions traditionnelles comme des facteurs déterminants de la déviance juvénile.

Malgré cet intérêt scientifique, peu de recherches ont analysé les liens entre l'évolution des institutions initiatiques du Poro et du Dozoya et les comportements déviants des jeunes initiés, notamment à Niellé. Les travaux existants privilégient généralement les dimensions anthropologiques et culturelles de ces institutions, laissant encore insuffisamment documentés les déterminants contemporains des comportements déviants dans ce contexte.

Dès lors, cette recherche s'articule autour de la question centrale suivante : comment les transformations socioéconomiques, familiales et institutionnelles influencent-elles l'émergence des comportements déviants chez les jeunes initiés au Poro et au Dozoya à Niellé ?

Cette étude vise à analyser les déterminants des comportements déviants chez les jeunes initiés au Poro et au Dozoya à Niellé, au nord de la Côte d'Ivoire. Elle cherche plus précisément à identifier les facteurs socioéconomiques, familiaux, culturels et institutionnels associés à ces comportements et à comprendre comment les mutations sociales contemporaines influencent les mécanismes traditionnels de socialisation.

L'originalité de cette recherche réside dans l'articulation entre l'analyse sociologique de la déviance et l'étude des institutions initiatiques sénoufo, encore peu explorée dans la littérature ivoirienne. À partir de données empiriques recueillies auprès de jeunes initiés, d'initiateurs, de chefs coutumiers et de parents, l'étude apporte des connaissances susceptibles d'éclairer les politiques publiques et les stratégies communautaires de prévention des comportements déviants et de renforcement des mécanismes locaux de régulation sociale.

Après cette introduction, l'article présente successivement la méthodologie adoptée, les résultats issus de l'analyse des données, puis leur discussion à la lumière de la littérature scientifique. Une conclusion synthétise les principaux apports, les limites et les perspectives de recherche.

2. Méthodologie de recherche

2.1. Cadre d'étude

Cette étude a été menée à Niellé, au nord de la Côte d'Ivoire, une zone majoritairement peuplée de communautés Sénoufo où le Poro et le Dozoya jouent un rôle central dans la transmission des valeurs et la socialisation des jeunes. Face aux mutations sociales, économiques et culturelles actuelles, l'émergence de comportements déviants chez certains initiés fait de cette

localité un terrain pertinent pour analyser les transformations des mécanismes traditionnels de socialisation.

2.2. Type et approche de recherche

Cette étude adopte une démarche descriptive et explicative visant à analyser les comportements déviants des jeunes initiés au Poro et au Dozoya ainsi que leurs déterminants dans un contexte de mutations sociales, économiques et culturelles. Elle repose sur une approche mixte combinant entretiens semi-directifs, observations de terrain et questionnaire administré à 70 enquêtés. Les données qualitatives ont fait l'objet d'une analyse thématique tandis que les données quantitatives ont été analysées par des tests statistiques descriptifs et inférentiels (tests du χ^2 de Pearson et du V de Cramér), permettant de mieux comprendre les facteurs associés à l'émergence des comportements déviants. Compte tenu du caractère sensible des informations recueillies, notamment celles relatives aux pratiques initiatiques et aux comportements déviants, plusieurs mesures éthiques ont été mises en œuvre. Avant chaque entretien, les objectifs de la recherche ont été clairement expliqués aux participants, et leur consentement libre et éclairé a été obtenu. La participation était entièrement volontaire et chacun pouvait se retirer de l'étude à tout moment sans conséquence. L'anonymat a été garanti par l'attribution de codes alphanumériques aux participants (par exemple : D.B.01, O.L.03, C.C.05), et toutes les données permettant leur identification ont été supprimées des transcriptions. Les enregistrements audio, les notes de terrain et les fichiers numériques ont été conservés sur un support sécurisé, accessible uniquement au chercheur. Les résultats sont présentés sous une forme agrégée ou à l'aide de verbatim anonymisés, afin de préserver la confidentialité des personnes interrogées ainsi que le respect des savoirs et des pratiques culturelles propres aux communautés Sénoufos.

2.3. Participants de l'étude

La population cible de cette recherche est constituée de jeunes initiés au Poro et au Dozoya, d'initiateurs, de parents de jeunes initiés ainsi que de chefs coutumiers de la ville de Niellé. Toutefois, aucun recensement administratif ou communautaire exhaustif ne permet de déterminer avec précision l'effectif de chacune de ces catégories. En l'absence d'une base de sondage fiable, il n'a pas été possible d'établir la taille réelle de la population d'étude.

Dans ce contexte, un échantillonnage raisonné (ou par choix raisonné) a été retenu afin de sélectionner les participants les plus susceptibles de fournir des informations pertinentes au regard des objectifs de la recherche. Ce mode d'échantillonnage est particulièrement adapté aux études qualitatives et mixtes portant sur des groupes spécifiques dont les membres sont identifiés en

fonction de leur expérience, de leur rôle social et de leur connaissance du phénomène étudié.

Notre échantillon comprend 70 participants : 30 jeunes initiés au Poro et au Dozoya (15 dans chacun des deux groupes), 10 initiateurs du Poro et du Dozoya (5 dans chacun des deux groupes), 21 parents et 9 chefs coutumiers. Le questionnaire a été administré à l'ensemble des 70 participants afin de recueillir les données quantitatives relatives aux caractéristiques sociodémographiques, aux formes de comportements déviants et à leurs déterminants. Parmi ces participants, 49 (30 jeunes initiés, 10 initiateurs et 9 chefs coutumiers) ont également pris part à des entretiens semi-directifs approfondis, dont les verbatim ont été mobilisés pour l'analyse qualitative. Les parents ont contribué à l'enquête par questionnaire, leur participation ayant permis d'enrichir les données quantitatives relatives aux perceptions des comportements déviants et de leurs facteurs explicatifs. Le recrutement a été arrêté à la saturation des données, lorsque les entretiens supplémentaires n'apportaient plus d'informations nouvelles.

2.4. Caractéristiques sociodémographiques des participants

L'étude a porté sur un échantillon de 70 enquêtés sélectionnés de manière raisonnée afin de recueillir les points de vue des principaux acteurs impliqués dans les institutions initiatiques du Poro et du Dozoya à Niellé. L'échantillon est composé de 30 jeunes initiés (42,9 %), 10 initiateurs (14,3 %), 21 parents (30,0 %) et 9 chefs coutumiers (12,8 %), permettant ainsi de confronter les perceptions des différents groupes concernés.

Tableau 1: Caractéristiques sociodémographiques des participants (N = 70)

Variables	Modalités	Effectif (n)	Pourcentage (%)
Sexe	Homme	65	92,9
	Femme	5	7,1
	Total	70	100
Catégorie d'enquêtés	Jeunes initiés	30	42,9
	Initiateurs	10	14,3
	Parents	21	30
	Chefs coutumiers	9	12,8
	Total	70	100
Niveau d'instruction	Sans instruction	42	60
	Primaire	14	20
	Secondaire	11	15,7
	Supérieur	3	4,3
	Total	70	100
Profession	Agriculteur	55	78,6
	Élève	5	7,1
	Étudiant	3	4,3
	Commerçant	4	5,7
	Mécanicien-moto	2	2,9
	Forgeron	1	1,4

Variables	Modalités	Effectif (n)	Pourcentage (%)
	Total	70	100

Source : Enquête de terrain, 2022

2.5. Analyse des caractéristiques sociodémographiques

Les résultats indiquent une très forte représentation des hommes (92,9 %), contre 7,1 % de femmes. Cette distribution reflète le caractère historiquement masculin des institutions initiatiques du Poro et du Dozoya, même si certaines femmes, notamment des mères de jeunes initiés, ont été intégrées à l'étude afin de recueillir leur perception des comportements observés.

La répartition par catégorie d'enquêtés révèle une prédominance des jeunes initiés (42,9 %), suivie des parents (30,0 %), des initiateurs (14,3 %) et des chefs coutumiers (12,8 %). Cette diversité d'acteurs a permis de confronter les expériences des bénéficiaires directs des rites initiatiques à celles des responsables traditionnels et des familles, renforçant ainsi la richesse des données recueillies.

Concernant le niveau d'instruction, la majorité des participants (60,0 %) n'a reçu aucune instruction scolaire formelle. Les personnes ayant un niveau primaire représentent 20,0 %, celles du secondaire 15,7 %, tandis que seulement 4,3 % disposent d'un niveau d'enseignement supérieur. Cette structure reflète le contexte rural de la zone d'étude, où l'accès à l'éducation demeure relativement limité.

La profession des enquêtés montre une forte prédominance des activités agricoles (78,6 %), confirmant le caractère essentiellement agricole de l'économie locale. Les élèves (7,1 %), les commerçants (5,7 %), les étudiants (4,3 %), les mécaniciens-moto (2,9 %) et le forgeron (1,4 %) constituent des catégories moins représentées. Cette distribution professionnelle traduit les réalités socioéconomiques de Niellé et met en évidence le poids de l'agriculture dans les modes de vie des populations concernées.

Dans l'ensemble, ces caractéristiques sociodémographiques montrent que les participants sont majoritairement des hommes, faiblement scolarisés et exerçant des activités agricoles. Ce profil est représentatif des acteurs traditionnellement impliqués dans le fonctionnement du Poro et du Dozoya et offre un cadre pertinent pour analyser les déterminants des comportements déviants chez les jeunes initiés.

2.5.1. Techniques et instruments de collecte de données

Les données empiriques ont été recueillies entre janvier 2017 et mai 2022 à l'aide de trois principaux instruments : un questionnaire, une grille d'observation et un guide d'entretien semi-directif. Les entretiens ont été

menés en français auprès des personnes instruites et en sénoufo ou en dioula auprès des enquêtés ne maîtrisant pas le français. Le recours à ces différents outils a permis de trianguler les informations recueillies et de renforcer la validité scientifique des résultats.

2.5.2. Questionnaire

Le questionnaire a été administré individuellement à l'ensemble des 70 participants. Il comportait des questions fermées et semi-ouvertes. Le questionnaire comportait des questions portant sur les caractéristiques sociodémographiques des participants, leurs perceptions des comportements déviants observés ainsi que les principaux facteurs susceptibles de les expliquer.

2.5.3. Observation directe

Une observation directe non participante a été réalisée lors des cérémonies initiatiques, des rencontres communautaires et des espaces de vie afin d'analyser les interactions sociales, les comportements des jeunes initiés, les relations avec les initiateurs et les mécanismes de contrôle social. Une grille d'observation standardisée a permis de structurer et d'harmoniser les données recueillies :

Tableau 2: Grille d'observation utilisée lors de l'enquête

Dimensions observées	Éléments observés	Indicateurs
Cadre des activités initiatiques	Déroulement des cérémonies du Poro et du Dozoya	Respect des rites, participation des initiés, organisation des séances
Comportements des jeunes initiés	Attitudes pendant les activités et dans la communauté	Discipline, respect des consignes, solidarité, agressivité, violence verbale ou physique
Relations avec les initiateurs	Interactions entre initiés et responsables	Respect de l'autorité, obéissance, sanctions, conseils reçus
Relations avec les parents	Comportements envers les membres de la famille	Respect, écoute, conflits, désobéissance
Relations avec les autres jeunes	Interactions entre pairs	Esprit de groupe, influence des pairs, imitation des comportements
Comportements déviants observés	Manifestations de déviance	Violence, agressions, menaces, vols, dégradation de biens, braconnage, coups et blessures
Influence des technologies	Utilisation des téléphones et des réseaux sociaux	Temps consacré aux réseaux sociaux, contenus consultés, influence perçue
Conditions socioéconomiques	Situation de vie des jeunes	Activité professionnelle, chômage, précarité, niveau de vie
Environnement communautaire	Fonctionnement du contrôle social	Intervention des chefs coutumiers, médiation communautaire,

Dimensions observées	Éléments observés	Indicateurs
		application des sanctions traditionnelles
Fonctionnement des institutions initiatiques	Rôle éducatif du Poro et du Dozoya	Transmission des valeurs, contrôle des comportements, respect des normes traditionnelles

Source : Enquête de terrain, 2022

2.5.4. Guide d'entretien semi-directif

Les entretiens semi-directifs ont été réalisés auprès de 49 participants (30 jeunes initiés, 10 initiateurs et 9 chefs coutumiers), sélectionnés en raison de leur implication directe dans les institutions initiatiques et de leur connaissance approfondie du phénomène étudié. Ces entretiens ont été retranscrits puis soumis à un codage thématique inductif. En outre, la durée moyenne des entretiens variait entre 45 et 60 min et portait sur les perceptions des acteurs, le rôle éducatif des institutions initiatiques, les facteurs de déviance et les stratégies de renforcement du contrôle social. Appuyés par deux assistants, nous les avons réalisés en français, sénoufo ou dioula, enregistrés avec le consentement des participants, retranscrits puis analysés par une approche thématique afin d'identifier les principaux déterminants des comportements déviants.

Tableau 3: Principaux thèmes du guide d'entretien

Thèmes	Objectifs
Fonction éducative du Poro et du Dozoya	Comprendre le rôle traditionnel des institutions initiatiques
Manifestations des comportements déviants	Identifier les formes de déviance observées
Causes des comportements déviants	Explorer les facteurs économiques, sociaux, familiaux et culturels
Influence des pairs et des réseaux sociaux	Analyser leur impact sur les conduites des jeunes
Évolution des institutions initiatiques	Comprendre les effets des mutations sociales sur leur fonctionnement
Mécanismes de prévention	Recueillir les propositions des acteurs pour renforcer le contrôle social

Source : Enquête de terrain, 2022

2.6. Techniques de traitement des données

Les données ont été analysées selon une approche mixte combinant des méthodes qualitatives et quantitatives. Les données qualitatives, issues des 49 entretiens semi-directifs et des observations de terrain, ont été retranscrites intégralement, codées puis soumises à une analyse thématique afin d'identifier les formes de comportements déviants, leurs déterminants et les perceptions des acteurs. Les données quantitatives, recueillies au moyen d'un questionnaire administré à 70 participants, ont été traitées avec STATA, SPSS

et Excel et ont fait l'objet d'analyses descriptives (fréquences, pourcentages, moyennes, tableaux croisés) et inférentielles (tests du χ^2 de Pearson et du V de Cramér) pour examiner les associations entre les variables étudiées. Les résultats ont été interprétés à la lumière des théories de l'anomie, de l'association différentielle et du contrôle social, ce qui a permis de croiser les données statistiques et les discours des participants.

2.7. Considérations éthiques

La recherche a respecté les principes éthiques applicables aux études impliquant des participants humains. Avant chaque entretien, les objectifs de l'étude ont été clairement expliqués aux participants, et leur consentement libre et éclairé a été obtenu. Les personnes interrogées ont été informées de leur droit de se retirer de l'étude à tout moment sans conséquence.

L'anonymat et la confidentialité des informations recueillies ont été garantis tout au long du processus de recherche. Les données ont été utilisées exclusivement à des fins scientifiques et les témoignages reproduits dans l'article ont été anonymisés afin de préserver l'identité des participants et des communautés concernées.

3. Résultats

Cette section présente les principaux résultats issus de l'étude menée auprès de 70 participants, comprenant des jeunes initiés au Poro et au Dozoya, des initiateurs, des chefs coutumiers et des parents à Niellé. Conformément à l'approche méthodologique mixte adoptée, les analyses s'appuient sur les données quantitatives recueillies auprès de l'ensemble des 70 participants au moyen d'un questionnaire. Elles sont complétées par les données qualitatives issues d'entretiens semi-directifs réalisés auprès d'un sous-échantillon de 49 participants, sélectionnés en fonction de leur implication dans les institutions initiatiques et de la richesse des informations susceptibles d'être recueillies. Les observations directes ont également contribué à la triangulation des données.

3.1. Formes de comportements déviants observées

Les témoignages recueillis auprès des 49 enquêtés directement impliqués dans les institutions initiatiques, dont 30 jeunes initiés au Poro et au Dozoya ainsi que 10 initiateurs et 9 chefs coutumiers, sélectionnés en raison de leur connaissance approfondie des pratiques initiatiques, révèlent que certains jeunes initiés adoptent des comportements déviants se manifestant par des atteintes aux personnes (agressions, violences, menaces et coups et blessures) et des atteintes aux biens (vols, destructions ou dégradations de biens, braconnage et autres infractions contre le patrimoine).

3.2. Typologie des comportements déviants observés chez les jeunes initiés

L'analyse des données met en évidence deux principales catégories de comportements déviants rapportés par les enquêtés : les atteintes aux personnes et les atteintes aux biens. Toutefois, leur répartition varie selon le type d'institution initiatique.

Tableau 4: Données croisées des effectifs observés (O)

Type d'initiation	Atteintes aux biens	Atteintes aux personnes	Total
Poro	1	24	25
Dozoya	24	0	24
Total	25	24	49

Source : Enquête de terrain, 2022

Tableau 5: Effectifs attendus (E)

Type d'initiation	Atteintes aux biens (E)	Atteintes aux personnes (E)
Poro	12,76	12,24
Dozoya	12,24	11,76

Source : Enquête de terrain, 2022

3.3. Résultats du test du χ^2 de Pearson

Le test du χ^2 met en évidence une association statistiquement très significative entre le type d'initiation et la nature des comportements déviants rapportés ($\chi^2(1, N = 49) = 41,40, p < 0,001$). Cette probabilité extrêmement faible indique que la distribution observée est très peu susceptible d'être due au hasard.

L'examen des effectifs observés et attendus montre des écarts particulièrement marqués. Les jeunes initiés au Poro sont associés à un nombre d'atteintes aux personnes nettement supérieur à celui attendu (24 observations contre 12,24 attendues), alors que les atteintes aux biens y sont beaucoup moins fréquentes que prévu (1 observation contre 12,76 attendues). À l'inverse, les initiés au Dozoya présentent une concentration des atteintes aux biens (24 observations contre 12,24 attendues), tandis qu'aucune atteinte aux personnes n'a été rapportée dans ce groupe, alors que 11,76 cas étaient statistiquement attendus. Ces différences s'expliqueraient par les contextes sociaux propres à chaque institution : les activités du Dozoya, centrées sur la chasse en milieu forestier, limitent les interactions avec la communauté, tandis que les initiés au Poro, davantage impliqués dans la vie villageoise, sont plus exposés aux interactions sociales et aux atteintes aux personnes. Cette interprétation doit toutefois être nuancée, les résultats reposant sur les perceptions des enquêtés plutôt que sur des données judiciaires ou administratives.

Afin d'apprécier l'intensité de cette relation, le coefficient V de Cramér a également été calculé. La valeur obtenue ($V = 0,960$) traduit une association

très forte entre le type d'initiation et la forme des comportements déviants observés. Au-delà de leur significativité statistique, les différences mises en évidence présentent ainsi une ampleur importante, ce qui suggère que le contexte initiatique constitue un élément structurant dans la manière dont les comportements déviants sont perçus et rapportés au sein des communautés étudiées. Ces résultats mettent en évidence l'existence de profils différenciés de comportements déviants selon les institutions initiatiques. Ils invitent toutefois à dépasser une lecture strictement descriptive pour examiner les facteurs sociaux, économiques, familiaux et culturels susceptibles d'expliquer ces différences. La section suivante est consacrée à l'analyse de ces déterminants.

3.4. Déterminants des comportements déviants

Les participants ont identifié plusieurs facteurs susceptibles d'expliquer les comportements déviants observés chez les jeunes initiés.

Tableau 6: Principaux déterminants des comportements déviants

Déterminants	Nombre de réponses « Oui » (n)	Pourcentage (%)
Pauvreté et chômage	40	57,1
Influence des groupes de pairs	52	74,3
Fragilisation de l'encadrement familial	59	84,3
Influence des réseaux sociaux	55	78,6
Affaiblissement du Poro et du Dozoya	30	42,9
Nombre total d'enquêtés	70	100

Source : Enquête de terrain, 2022

3.5. Analyse descriptive des déterminants des comportements déviants

La fragilisation de l'encadrement familial constitue le facteur le plus fréquemment mentionné par les enquêtés. En effet, 59 participants sur 70 (84,3 %) estiment que l'affaiblissement de l'autorité parentale et le relâchement du suivi éducatif favorisent l'émergence de comportements déviants chez les jeunes initiés. Ce résultat met en évidence le rôle central de la famille dans les processus de socialisation primaire et dans la régulation des conduites.

Les entretiens illustrent cette perception. Selon un initiateur du Poro (P.I.04, 58 ans) :

« Aujourd'hui, beaucoup de jeunes n'écoutent plus les conseils de leurs parents comme auparavant. Lorsqu'ils quittent le cadre de l'initiation, ils sont davantage influencés par leurs amis et par ce qu'ils voient sur les téléphones. Les valeurs que nous leur transmettons deviennent plus difficiles à préserver. »

Ce constat est partagé par un chef coutumier (C.C.05, 71 ans) : « Les enfants s'éduquent eux-mêmes maintenant. Ils ne s'asseyent plus à côté des

vieux comme à notre temps. Les parents préfèrent donc les laisser à eux-mêmes pour ne pas essuyer des manques de respect. On ne peut rien faire pour leur avenir vu qu'on n'a pas d'argent ; qu'est-ce qu'on peut imposer comme contrainte à nos enfants ? Rien. »

Au-delà du constat d'une perte d'autorité, ce témoignage traduit le sentiment d'impuissance de certaines familles confrontées à des difficultés économiques qui limitent leur capacité à encadrer les jeunes.

L'influence des réseaux sociaux constitue le deuxième déterminant le plus fréquemment cité (55 répondants ; 78,6 %). Les enquêtés considèrent que les plateformes numériques exposent les jeunes à des modèles culturels susceptibles de banaliser la violence, de promouvoir l'individualisme et d'encourager des comportements en rupture avec les normes communautaires. Plusieurs responsables traditionnels estiment que ces nouveaux espaces de socialisation concurrencent désormais les formes traditionnelles de transmission des valeurs.

À cet égard, un chef traditionnel (K.Y.11, 74 ans) observe que de nombreux jeunes cherchent à reproduire les modes de vie diffusés sur les réseaux sociaux, parfois au détriment des usages locaux. Cette analyse est renforcée par les propos d'un autre responsable (B.I.03, 67 ans) :

« Les réseaux sociaux sont en train d'arracher les valeurs les plus chères de notre société aux générations à venir. Ils altèrent l'éducation traditionnelle que nous donnons à nos jeunes sous l'influence de celle d'ailleurs. On se demande si, après nous, nos rites initiatiques ne seront pas dévoyés de leur objectif originel par nos enfants qui sont aujourd'hui jeunes initiés. »

L'influence des groupes de pairs est également largement reconnue (74,3 %). Les participants soulignent que les jeunes adoptent souvent les comportements valorisés par leur entourage afin d'obtenir reconnaissance, appartenance ou protection au sein de leur groupe. Cette dynamique apparaît particulièrement marquée après l'initiation, lorsque les jeunes retrouvent leurs espaces habituels de socialisation.

Comme l'explique un jeune initié (A.K.53, 19 ans), « dans certains cercles, on finit par adopter les mêmes attitudes, quitte à trahir ses propres convictions, simplement pour se sentir intégré ». Un autre enquêté (O.Z.10, 28 ans) ajoute :

« Après l'initiation, nous avons une vie en société avec nos amis du quartier ou de l'école. Malgré les valeurs qui nous sont transmises à l'initiation, on se retrouve face aux réalités de la vie comme tout le monde avec l'influence de ceux avec qui on passe du temps. »

Ces témoignages montrent que la pression exercée par les pairs peut progressivement conduire certains jeunes à relativiser les normes acquises au

cours de l'initiation, notamment lorsque leur environnement quotidien valorise d'autres modèles de comportement.

Les difficultés économiques, notamment la pauvreté et le chômage, sont mentionnées par 40 répondants (57,1 %). Bien qu'elles soient moins fréquemment citées que les facteurs familiaux ou relationnels, elles demeurent des déterminants importants. Plusieurs enquêtés soulignent que l'absence de perspectives professionnelles et les difficultés d'insertion sociale peuvent favoriser des stratégies de survie incompatibles avec les normes communautaires.

À ce sujet, un initiateur au Dozoya (D.I.03, 56 ans) explique que de nombreux jeunes initiés demeurent sans diplôme et sans emploi stable. Selon lui, cette situation nourrit un sentiment de frustration susceptible d'encourager certains comportements déviants. Ce constat est partagé par un jeune initié (F.K.09, 29 ans), qui résume cette réalité en déclarant :

« La vie est dure. La pauvreté et le chômage peuvent nous enlever toute humanité et dignité. »

Enfin, l'affaiblissement du Poro et du Dozoya est évoqué par 30 participants (42,9 %). Bien qu'il soit moins souvent cité que les autres déterminants, ce facteur demeure significatif. Plusieurs responsables traditionnels estiment que les mutations sociales contemporaines réduisent progressivement l'influence normative de ces institutions.

Ainsi, un responsable du Poro (O.P.07, 68 ans) regrette que certains enseignements initiatiques soient aujourd'hui remis en question par les jeunes générations :

« Il y a des choses que nous faisons au cours des initiations qu'on ne peut plus faire aujourd'hui... »

De manière similaire, un chef Dozo (D.B02., 32 ans) souligne que le respect des règles de loyauté et de sincérité, autrefois considéré comme fondamental, tend à s'affaiblir chez certains membres de la confrérie. Ces observations suggèrent que les institutions initiatiques continuent d'exercer une fonction importante de régulation sociale, mais que leur capacité à encadrer durablement les comportements des jeunes est désormais confrontée aux profondes transformations sociales, économiques et culturelles qui affectent les communautés rurales.

Tableau 7: Classement des déterminants

Rang	Déterminant	Pourcentage (%)
1	Fragilisation de l'encadrement familial	84,3
2	Influence des réseaux sociaux	78,6
3	Influence des groupes de pairs	74,3
4	Pauvreté et chômage	57,1
5	Affaiblissement du Poro et du Dozoya	42,9

Source : Enquête de terrain, 2022

3.6. Interprétation

Le classement des déterminants met en évidence la prédominance des facteurs de socialisation dans l'explication des comportements déviants observés chez les jeunes initiés. La fragilisation de l'encadrement familial (84,3 %), l'influence des réseaux sociaux (78,6 %) et celle des groupes de pairs (74,3 %) apparaissent comme les principaux facteurs identifiés par les enquêtés. Ces résultats suggèrent que les comportements déviants s'expliquent davantage par les transformations des environnements éducatifs, relationnels et culturels dans lesquels évoluent les jeunes que par un affaiblissement intrinsèque des institutions initiatiques.

La forte proportion de répondants soulignant le rôle de la famille confirme l'importance de la socialisation primaire dans la construction des comportements. Lorsque les mécanismes de supervision parentale et de transmission des valeurs s'affaiblissent, les jeunes deviennent plus réceptifs aux influences exercées par leurs pairs et par les nouveaux espaces de socialisation, notamment les réseaux sociaux numériques. Ces derniers contribuent à diffuser des modèles de comportement qui peuvent entrer en concurrence avec les normes traditionnellement transmises par le Poro et le Dozoya.

Les difficultés économiques, notamment la pauvreté et le chômage, demeurent également des facteurs explicatifs importants (57,1 %). Bien qu'elles soient moins fréquemment citées que les mécanismes de socialisation, elles peuvent accentuer la vulnérabilité des jeunes en limitant leurs perspectives d'insertion sociale et professionnelle. Les données suggèrent ainsi que les contraintes économiques n'agissent pas de manière isolée, mais interagissent avec les facteurs familiaux et relationnels pour favoriser l'émergence de comportements déviants.

Enfin, si l'affaiblissement du Poro et du Dozoya est moins souvent évoqué (42,9 %), il n'en demeure pas moins un élément significatif. Ce résultat indique que les enquêtés continuent de reconnaître à ces institutions un rôle important dans la transmission des valeurs et la régulation sociale. Toutefois, leur capacité d'influence apparaît désormais confrontée à des mutations sociales, culturelles et technologiques qui redéfinissent les processus contemporains de socialisation des jeunes.

Dans l'ensemble, ces résultats montrent que les comportements déviants des jeunes initiés relèvent d'une dynamique multifactorielle, dans laquelle les facteurs familiaux, relationnels, économiques et institutionnels interagissent. Ils soulignent la nécessité de privilégier une approche intégrée de la prévention, fondée sur la complémentarité entre la famille, les institutions initiatiques, l'école et les politiques publiques de protection et d'accompagnement de la jeunesse.

4. Discussion

Les données empiriques montrent que les comportements déviants de certains jeunes initiés au Poro et au Dozoya résultent de l'interaction de facteurs économiques, familiaux, sociaux et institutionnels. Cette configuration confirme que la déviance ne peut être réduite à une caractéristique individuelle, mais constitue un phénomène social résultant de transformations affectant les mécanismes de régulation et de socialisation. Cette lecture rejoint la perspective de Durkheim (2014), pour qui la déviance est un fait social révélateur des mutations qui traversent une société et des tensions susceptibles d'affaiblir la force intégratrice des normes collectives.

La fragilisation de l'encadrement familial apparaît comme un déterminant majeur, confirmant les travaux de Hirschi (2022) sur l'importance des liens sociaux dans le contrôle des comportements. À Niellé, la diminution de l'autorité parentale et du suivi éducatif réduit la capacité des familles et des institutions initiatiques à assurer pleinement la transmission des normes sociales. L'influence des groupes de pairs constitue également un facteur important, en accord avec Becker (1963), les comportements déviants pouvant être appris et renforcés par les interactions sociales. Certains jeunes adoptent ainsi des pratiques valorisées par leur groupe afin d'obtenir reconnaissance, protection ou prestige, au détriment des valeurs traditionnelles du Poro et du Dozoya.

Les difficultés économiques, notamment la pauvreté et le chômage, constituent aussi des facteurs explicatifs majeurs. Elles rejoignent la théorie de l'anomie de Merton (1938), selon laquelle l'écart entre aspirations sociales et moyens légitimes d'accès à ces objectifs peut favoriser la déviance. Dans ce contexte, la précarité peut conduire certains jeunes à recourir à des pratiques illicites pour améliorer leurs conditions de vie.

L'étude met également en évidence l'influence croissante des réseaux sociaux numériques, qui diffusent de nouveaux modèles culturels parfois en rupture avec les normes locales, favorisant l'individualisme, la recherche de visibilité et la remise en cause de certaines autorités traditionnelles. Cette évolution peut être interprétée à la lumière des travaux de Berger et Luckmann (1991), qui montrent que les normes sociales sont continuellement construites, reconstruites et légitimées à travers les interactions quotidiennes. Les réseaux sociaux diffusent ainsi de nouveaux modèles culturels qui redéfinissent les représentations de la réussite, de l'autorité et des rapports sociaux, parfois au détriment des valeurs traditionnellement transmises par les institutions initiatiques.

Les résultats montrent par ailleurs que le Poro et le Dozoya continuent d'occuper une place importante dans les processus de socialisation des jeunes, bien que leur capacité de régulation soit progressivement confrontée aux mutations contemporaines. Cette observation est cohérente avec les travaux

de Coulibaly (2012), qui soulignent le rôle historique du Poro dans la transmission des valeurs sociales chez les Sénoufo, ainsi qu'avec ceux de Koné (2015), qui mettent en évidence la fonction régulatrice exercée par les chasseurs traditionnels dans les communautés du nord de la Côte d'Ivoire. Les recherches de Hellweg (2012) montrent également que les Dozos demeurent des acteurs influents de la régulation sociale, même si leurs pratiques évoluent sous l'effet des transformations politiques et sociales. De leur côté, Fofana et Bamba (2022) ainsi que Fofana et Diabi (2021) rappellent que les institutions initiatiques sénoufo continuent d'assurer la transmission des savoirs, des normes et des valeurs culturelles, tout en étant confrontées aux effets de la modernisation, de l'urbanisation et de l'ouverture croissante des jeunes à de nouvelles influences culturelles. Enfin, les analyses statistiques révèlent une association significative entre le type d'initiation et les formes de comportements déviants rapportées. Les initiés au Poro sont davantage associés aux atteintes contre les personnes, tandis que ceux du Dozoya sont plus fréquemment associés aux atteintes aux biens. Cette relation doit toutefois être interprétée avec prudence, car elle reflète les perceptions des participants et non une propension intrinsèque de ces institutions à produire des comportements déviants. Dans cette perspective, Ogien (2012) rappelle que la déviance ne constitue pas une propriété des individus ou des groupes, mais résulte d'un processus de qualification sociale fondé sur les normes et les valeurs en vigueur dans une société donnée.

Dans l'ensemble, cette recherche montre que les comportements déviants des jeunes initiés résultent d'une dynamique multifactorielle dans laquelle interagissent les conditions économiques, les transformations des structures familiales, les influences des pairs, les nouveaux espaces numériques de socialisation et les mutations des institutions traditionnelles. Elle souligne la nécessité de renforcer la complémentarité entre la famille, le Poro, le Dozoya, l'école et les politiques publiques afin d'adapter les dispositifs de prévention de la déviance juvénile aux réalités sociales contemporaines.

Conclusion

Cette recherche avait pour objectif d'analyser les déterminants des comportements déviants chez les jeunes initiés au Poro et au Dozoya à Niellé, en mettant en évidence l'influence des facteurs socioéconomiques, familiaux, relationnels et institutionnels. Les résultats montrent que ces comportements ne peuvent être expliqués par une cause unique, mais résultent d'une interaction complexe entre les transformations sociales contemporaines et les mécanismes traditionnels de socialisation.

L'étude révèle notamment que la fragilisation de l'encadrement familial, la précarité économique, l'influence des groupes de pairs et l'exposition croissante aux réseaux sociaux constituent des facteurs majeurs

associés aux conduites déviantes des jeunes initiés. Ces résultats soulignent également que le Poro et le Dozoya demeurent des institutions importantes de transmission des valeurs et de régulation sociale, mais que leur capacité d'encadrement est confrontée à de nouvelles dynamiques sociales qui transforment les rapports des jeunes aux normes communautaires.

L'analyse met ainsi en évidence la nécessité d'une approche intégrée de prévention associant les institutions initiatiques, les familles, l'école et les acteurs publics. Le renforcement du dialogue intergénérationnel, l'adaptation des mécanismes traditionnels de socialisation aux réalités actuelles et l'amélioration des opportunités économiques pour les jeunes apparaissent comme des pistes essentielles pour limiter les comportements déviants.

Cette étude présente toutefois certaines limites liées à son ancrage territorial dans la ville de Niellé et au caractère déclaratif d'une partie des données recueillies. Des recherches comparatives menées dans d'autres communautés Sénoufo ou dans d'autres espaces culturels ivoiriens permettraient d'approfondir l'analyse des relations entre transformations sociales, institutions traditionnelles et déviance juvénile.

Conflit d'intérêts : L'auteur a déclaré n'avoir aucun conflit d'intérêts.

Disponibilité des données : Toutes les données figurent dans le corps de l'article.

Déclaration de financement : L'auteur n'a bénéficié d'aucun financement pour cette recherche.

Étude impliquant des participants humains : Bien qu'aucune approbation formelle d'un comité institutionnel d'éthique n'ait été obtenue, cette étude a été menée dans le cadre des fonctions académiques du chercheur à l'Université Félix Houphouët-Boigny, où il est employé en qualité d'enseignant-chercheur et affilié au Laboratoire d'étude et de prévention de la délinquance et de la violence au sein du Département de criminologie. Les auteurs reconnaissent cette limite et confirment que l'étude a été conduite conformément aux principes éthiques applicables aux recherches impliquant des participants humains, notamment le respect de la dignité, la participation volontaire, le consentement éclairé, la confidentialité et la protection des participants et des communautés contre tout préjudice.

Avant le début de la collecte des données, une autorisation communautaire verbale a été obtenue auprès des chefs traditionnels et des autorités locales compétentes. Cette autorisation communautaire ne s'est pas substituée au consentement individuel, lequel a été obtenu séparément auprès de chaque participant avant sa participation.

Tous les participants ont été informés des objectifs de l'étude, des procédures prévues ainsi que de l'utilisation scientifique des données recueillies. Leur participation était entièrement libre et volontaire. Ils ont été informés de leur droit de refuser de répondre à certaines questions ou de se retirer de l'étude à tout moment, sans aucune conséquence.

L'anonymat et la confidentialité ont été assurés par l'utilisation de codes alphanumériques et par la suppression des informations permettant d'identifier directement les participants. Compte tenu du caractère sensible des informations relatives aux pratiques culturelles du Poro, du Dozoya et des Sénoufo, une attention particulière a été accordée à la protection des savoirs culturellement sensibles et à la prévention de toute divulgation susceptible d'identifier, de stigmatiser ou de porter préjudice aux participants ou aux communautés concernées. Les données ont été utilisées exclusivement à des fins scientifiques et présentées sous forme agrégée ou anonymisée. Aucune information confidentielle, sacrée, restreinte ou culturellement protégée n'a été divulguée de manière susceptible de nuire aux communautés impliquées.

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Gouvernance Durable et Dynamique de la Fréquentation Touristique de la Grotte de Dimba (RD Congo)

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[Doi:10.19044/esj.2026.v22n23p169](https://doi.org/10.19044/esj.2026.v22n23p169)

Submitted: 09 July 2026

Accepted: 11 August 2026

Published: 31 August 2026

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OPEN ACCESS

Cite As:

Mudinga Mudinga, D., Ngandote Mutemusa, A., Holenu Mangenda, H., & Matadi Pasa Makina, J. (2026). *Gouvernance Durable et Dynamique de la Fréquentation Touristique de la Grotte de Dimba (RD Congo)*. European Scientific Journal, ESJ, 22 (23), 169.

<https://doi.org/10.19044/esj.2026.v22n23p169>

Résumé

Objectifs : Cette étude vise à analyser l'incidence des modèles de gouvernance environnementale sur la dynamique de fréquentation touristique de la grotte de Dimba. Elle poursuit spécifiquement l'évaluation de l'état des lieux des flux de visiteurs (2021-2025), la mesure de la perception de la dégradation écologique par les usagers, l'identification des failles institutionnelles de gestion et la modélisation des tendances de fréquentation à l'horizon 2035. **Champ d'application :** La recherche se concentre sur la grotte de Dimba, un écosystème karstique situé dans la province du Kongo Central (RD Congo), reconnu pour sa biodiversité endémique, notamment le poisson aveugle *Caecobarbus geertsii*, et son potentiel patrimonial exceptionnel. **Méthodes :** Adoptant une approche systémique articulée entre systèmes cryptique et anthropique, l'étude s'appuie sur une méthodologie mixte. Des enquêtes quantitatives ont été menées auprès d'un échantillon de 345 touristes sur une période de cinq ans. Les données ont été soumises à des analyses statistiques multidimensionnelles (Analyse en Composantes Principales, Analyse des Correspondances Multiples, Corrélation de Spearman) et à une modélisation par régression linéaire pour les projections

prospectives. **Résultats** : Les analyses révèlent une érosion constante de l'attractivité du site, marquée par une baisse de la fréquentation annuelle de 156 à 125 visiteurs entre 2021 et 2025 ($R^2 = 0,96$). Cette dynamique négative est corrélée à une perception quasi unanime de dégradation environnementale (94,2 %) et à une gouvernance étatique jugée inefficace. Les projections indiquent une chute critique à moins de 46 visiteurs annuels d'ici 2035 en l'absence de réformes structurelles. **Conclusion** : L'étude souligne l'urgence d'une transition vers un modèle de gouvernance communautaire partagée pour enrayer le déclin du site. Elle préconise la mise en œuvre d'un zonage tripartite (protection intégrale, zone touristique et boisement) comme levier de conservation de la biodiversité et de valorisation durable, condition probable pour une éventuelle inscription au patrimoine mondial de l'UNESCO.

Mots-clés : Grotte, Dynamique touristique, Approche systémique, Gouvernance, Zonage tripartite, RDC, UNESCO

Sustainable Governance and Dynamics of Tourist Traffic at the Dimba Cave (DR Congo)

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Abstract

Objectives: This study aims to analyze the impact of environmental governance models on the dynamics of tourist traffic to the Dimba Cave. Specifically, it seeks to assess the current state of visitor flows (2021-2025), measure users' perceptions of ecological degradation, identify institutional management gaps, and model visitor trends to 2035. **Scope:** The research focuses on the Dimba Cave, a karst ecosystem located in the Kongo Central province (Democratic Republic of Congo), renowned for its endemic biodiversity, particularly the blind fish *Caecobarbus geertsii*, and its exceptional heritage potential. **Methods:** Adopting a systemic approach that integrates cryptic and anthropogenic systems, the study employs a mixed-methods approach. Quantitative surveys were conducted with a sample of 345 tourists over a five-year period. The data underwent multidimensional statistical analyses (Principal Component Analysis, Multiple Correspondence

Analysis, Spearman's rank correlation coefficient) and linear regression modeling for prospective projections. **Results:** The analyses reveal a steady decline in the site's attractiveness, marked by a decrease in annual visitor numbers from 156 to 125 between 2021 and 2025 ($R^2 = 0.96$). This negative trend is correlated with a near-unanimous perception of environmental degradation (94.2%) and a perceived ineffectiveness of state governance. Projections indicate a critical drop to fewer than 46 annual visitors by 2035 without structural reforms. **Conclusion:** The study underscores the urgent need for a transition to a shared community governance model to halt the site's decline. It advocates for the implementation of a tripartite zoning system (full protection, tourist zone, and afforestation) as a lever for biodiversity conservation and sustainable development, a likely condition for potential inscription on UNESCO's World Heritage List.

Keywords: Cave, Tourism dynamics, Systems approach, Governance, Tripartite zoning, DRC, UNESCO

1. Introduction

Cette étude s'inscrit dans le champ de la gouvernance environnementale durable et du tourisme durable, en se focalisant sur la gestion des sites naturels sensibles, tels que les grottes karstiques. La gouvernance durable, telle que définie par (Williams, 2009) implique des processus de décision inclusifs, transparents et responsables, visant à concilier les objectifs économiques, sociaux et environnementaux à long terme. Dans le contexte du tourisme, elle se traduit par une gestion qui minimise les impacts négatifs sur l'environnement et les communautés locales, tout en maximisant les bénéfices socio-économiques.

La dynamique de la fréquentation touristique des sites naturels est intrinsèquement liée à la qualité de leur gestion et à leur attractivité perçue. Les grottes, en tant qu'écosystèmes fragiles et souvent abritant une biodiversité unique (comme le poisson aveugle **Caecobarbus geertsii** de Dimba), requièrent une approche de gestion particulièrement rigoureuse (UIS-Speleo, 2022).

L'absence de gouvernance ou une gouvernance défaillante peut entraîner une dégradation environnementale rapide, une perte d'attractivité et, par conséquent, une diminution de la fréquentation touristique (Williams, 2009).

La participation communautaire est un pilier essentiel de la gouvernance durable, en particulier dans les pays en développement où les communautés locales sont souvent les premières affectées par la gestion (ou l'absence de gestion) des ressources naturelles. Une gouvernance partagée, impliquant les autorités étatiques, les communautés locales, les opérateurs

touristiques et les experts scientifiques, est souvent préconisée pour assurer la pérennité des sites et le bien-être des populations. Ce modèle contraste avec une gestion étatique exclusive, qui peut s'avérer inefficace en raison de contraintes budgétaires, d'un manque d'expertise locale ou d'une faible responsabilisation (Van Megen, 2024).

L'analyse de l'influence de la gouvernance sur la fréquentation touristique de la grotte de Dimba permettra de combler une lacune dans la littérature scientifique sur la gestion des sites karstiques en République démocratique du Congo, un domaine où les études sont encore limitées. Elle contribuera également à l'élaboration de stratégies de conservation et de valorisation du patrimoine naturel, en s'appuyant sur les principes de la durabilité et de l'inclusion. Ainsi, de manière globale cette étude vise à analyser l'influence de la gouvernance sur la dynamique touristique et spécifiquement, elle vise à :

- Dresser un état des lieux de la fréquentation touristique de la grotte de Dimba entre 2021 et 2025.
- Comparer le rayonnement touristique de la grotte de Dimba par rapport à d'autres sites du district des Cataractes.
- Évaluer la perception de la dégradation environnementale et son impact sur l'attractivité du site.
- Analyser les faiblesses de la gouvernance actuelle et leurs conséquences sur la gestion du site.
- Réaliser des projections de fréquentation à l'horizon 2035, en tenant compte des facteurs de dégradation et de gouvernance.
- Proposer des recommandations pour une gouvernance partagée et un modèle d'aménagement et de gestion durable comme base possible pour une future stratégie de conservation du patrimoine et de proposition d'inscription.

2. Matériels et Méthodes

2.1. Choix et Description de la Zone d'Études

La grotte de Dimba, est un vaste tunnel qui se présente sous forme d'une énorme masse de roches calcaires creusée et vidée par les eaux d'infiltration au fil du temps. Située à 5 km du village de Ntoto et à plus de 13 km au sud de Mbanza-Ngungu sur une route carrossable. C'est une grotte à pente raide où l'on trouve des eaux souterraines dans lequel vivent les poissons aveugles (le *Caecobarbus geertsii*) espèce endémique et protégée. Cette grotte témoigne des grands réseaux phréatiques peu retouchés par une circulation vadose sous la crête de Mbanza-Ngungu.

2.2. Approche Méthodologique

L'étude adopte une approche systémique, distinguant le « système cryptique » (l'écosystème souterrain) du « système anthropique » (acteurs humains et flux associés). Elle combine des enquêtes documentaires, participatives et quantitatives.

2.3. Justification Méthodologique Détaillée

2.3.1. Échantillonnage des touristes

La taille de l'échantillon de touristes a été fixée à 69 par an, soit un total de 345 sur cinq ans. Pour une population touristique potentiellement large et inconnue, une taille d'échantillon typique pour obtenir une marge d'erreur de 10% avec un niveau de confiance de 95% (en supposant une proportion de 0.5 pour une variabilité maximale) serait d'environ 96 individus par an (calculé via la formule de Cochran : $n = (Z^2 * p * (1 - p)) / e^2$, où $Z = 1.96$, $p = 0.5$, $e = 0.10$). L'échantillonnage de 69 touristes par an permet une analyse exploratoire malgré les contraintes de ressources. Il est crucial de justifier ce choix de taille d'échantillon en fonction des contraintes liées au temps, aux ressources nécessaires et à l'absence d'un système opérationnel stable de contrôle et de réglementation de l'accès à la grotte, tout en rappelant qu'il s'agit des touristes différents pour chaque année, sélectionnés de manière automatique lors de leur passage pour enregistrement au bureau du tourisme des Cataractes à Mbanza-Ngungu et interrogés via un questionnaire disponible au bureau du tourisme pendant toute la période de notre enquête.

2.3.2. Barème de qualification du « rayonnement »

Le « rayonnement » du site a été qualifié en comparaison avec d'autres destinations du district des cataractes. Ce barème a été basé sur des indicateurs quantitatifs (fréquentation touristique régionale) et qualitatifs (perception des acteurs locaux, attractivité intrinsèque). La construction de cet indice composite a justifié sa pertinence scientifique et sa capacité à refléter fidèlement la popularité relative du site.

2.3.3. Limites de la projection à 10 ans

La projection à 10 ans (horizon 2035) a été réalisée à partir de cinq points de données annuelles (2021-2025). Bien que cette approche permette d'identifier des tendances réelles, elle présente des limites inhérentes à la faible quantité de données historiques.

2.3.4. Exclusion des autorités du tourisme

Les autorités du tourisme, bien que centrales dans l'analyse de la gouvernance, ont été exclues de l'échantillon des enquêtes quantitatives

directes auprès des touristes et des populations locales. Cette exclusion est justifiée par la nature spécifique de leur rôle, qui relève davantage de la prise de décision et de la mise en œuvre de politiques que de la perception directe de l'expérience touristique ou de l'impact local. Leur perspective a été intégrée de manière qualitative et complémentaire à travers des entretiens semi-directifs avec des représentants clés, l'analyse de documents officiels (plans de gestion, rapports d'activité) et des observations participantes. Cette approche mixte permet d'obtenir une vision holistique de la gouvernance, en combinant les perceptions des usagers et des populations avec les stratégies et les défis institutionnels.

2.4. Outils et Traitement Statistique

Pour analyser les données et évaluer le fonctionnement du mode de gestion de la grotte de Dimba, des analyses statistiques multidimensionnelles ont été employées à l'aide du logiciel R et de Python pour les projections :

- **Analyse Factorielle Multiple (AFM)** : Pour croiser des groupes de variables et montrer les corrélations entre elles (par exemple, motivations de découverte et niveau de contraintes).
- **Analyse en Composantes Principales (ACP)** : Utilisée pour les données quantitatives afin de simplifier l'information et conserver le maximum de variance.
- **Analyse des Correspondances Multiples (ACM)** : Appliquée aux variables qualitatives pour regrouper les touristes par "nuages de points" et identifier les profils types (par exemple, touristes étrangers à revenu élevé percevant une forte dégradation).
- **Corrélation de Spearman** : Pour évaluer l'existence d'une relation statistique entre deux variables ordinales ou quantitatives, sans exiger une relation linéaire stricte.
- **Régression Linéaire** : Utilisée pour modéliser la tendance de la fréquentation touristique et projeter les valeurs futures.

Les protocoles standards pour l'ACP, l'ACM et le test de Spearman ont été suivis, incluant la préparation des données, le calcul des matrices de corrélation, l'extraction des composantes principales, le choix du nombre d'axes, et l'interprétation des résultats à travers les cercles de corrélations, les nuages d'individus, les contributions et les cosinus carrés.

3. Résultats

3.1. Dynamique de la Fréquentation Touristique (2021-2025) et Projections 2035

L'analyse des effectifs touristiques annuels de la grotte de Dimba entre 2021 et 2025 révèle une tendance générale à la baisse du flux de visiteurs. Le nombre annuel de visiteurs est passé de 156 en 2021 à 125 en 2025. Cette

diminution est d'autant plus préoccupante que la clientèle locale, bien que majoritaire, s'érode progressivement. En comparaison avec d'autres sites du district des Cataractes, la grotte de Dimba perd en attractivité au profit de destinations comme la Cité Sainte de Nkamba et la chute de Ngovo, qui attirent un volume global de visiteurs bien plus important. Le tableau 1 présente les données de fréquentation observées :

Tableau 1 : Dynamique de la fréquentation touristique de la grotte de Dimba (2021-2025).

Année	Touristes Nationaux	Touristes Étrangers	Total	Rayonnement (comparé à Nkamba)
2021	Majorité	Minorité	156	Faible
2022	Majorité	Minorité	145	Faible
2023	Majorité	Minorité	135	Faible
2024	Majorité	Minorité	130	Faible
2025	Majorité	Minorité	125	Faible

Source : Bureau du Tourisme des Cataractes, adapté par Mudinga D.M.

Une régression linéaire a été appliquée aux données de fréquentation pour modéliser cette tendance et projeter les chiffres à l'horizon 2035. Les résultats de cette analyse sont les suivants :

Le nombre de visiteurs est passé de 156 en 2021 à 125 en 2025. La régression linéaire indique une baisse annuelle moyenne de 7,7 visiteurs ($R^2 = 0,9644$). Ces résultats, bien qu'étayant une tendance à la baisse, doivent être interprétés avec prudence car ils reposent sur seulement cinq observations annuelles et ne sauraient constituer une preuve statistique absolue.

Le coefficient de corrélation de Spearman ($\rho = -1,0000$) suggère une relation monotone décroissante. La valeur $p < 0,001$ confirme cette tendance observée. En l'absence d'intervention, l'équation de projection linéaire serait la suivante : $Y = -7,70 \times X + 15715,30$, où Y représente le nombre de visiteurs et X l'année. En appliquant cette équation pour l'année 2035, la projection de fréquentation touristique serait de **45,80 visiteurs**.

Cette projection est illustrée par la Figure 1, qui montre la tendance observée et la continuation de cette tendance jusqu'en 2035.

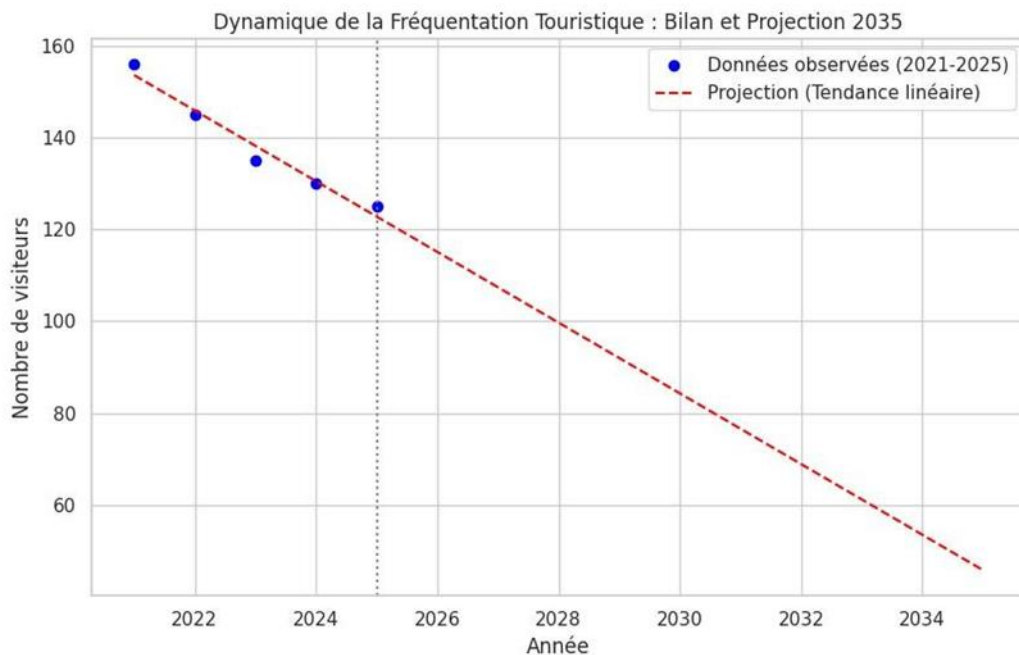


Figure 1 : Dynamique de la Fréquentation Touristique : Bilan et Projection 2035. Le graphique montre les données observées de 2021 à 2025 et la projection linéaire jusqu'en 2035, révélant une baisse continue de la fréquentation.

Les hypothèses sous-jacentes à cette prévision pour 2035 sont les suivantes :

1. **Inertie de gouvernance** : L'absence de réhabilitation effective malgré les promesses publiques non tenues.
2. **Dégradation continue** : L'intensification des pressions environnementales (braconnage, extraction de chaux) se poursuit.
3. **Perte d'attractivité** : L'effet de bouche-à-oreille, basé sur l'expérience négative des visiteurs qui reconnaissent (94,2% de l'échantillon global) que le niveau de dégradation du site est élevé, continue d'éloigner les potentiels touristes.
4. **Linéarité de la baisse** : Le déclin de la fréquentation suit la tendance observée sur la période 2021-2025 sans rupture technologique majeure ou changement radical de politique de gestion.

3.2. Profil Sociodémographique, Socioculturel et socioéconomique des Visiteurs

Les enquêtes menées par an entre 2021 et 2025 ont permis de dresser un profil type des visiteurs de la grotte de Dimba :

- **Sociodémographique** : Prédominance masculine, majoritairement mariés, résidant en milieu urbain, et âgés de 26 à 47 ans.
- **Socioculturel** : Majoritairement chrétiens (pour les nationaux), avec un niveau d'études universitaire. Les touristes étrangers montrent une

- **Socioéconomique** : Les données socioéconomiques (revenu, profession) ont été corrélées avec la perception du site, montrant que les touristes à revenu élevé, souvent étrangers, perçoivent plus fortement la dégradation.

Individuals - MCA

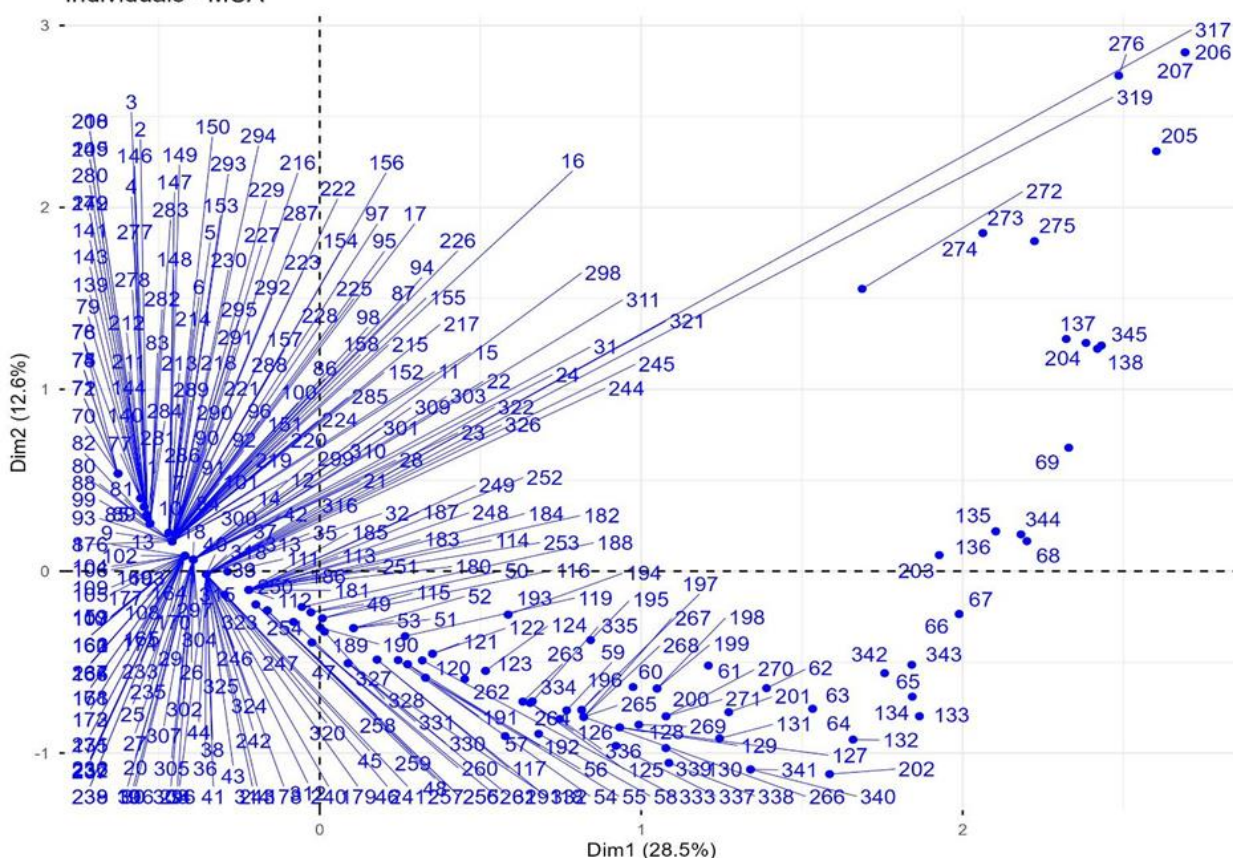


Figure 2 : Nuage des individus de l'Analyse des Correspondances Multiples (ACM). Les axes Dim1 (28,5 %) et Dim2 (12,6 %) représentent la variabilité des données, permettant d'identifier des groupes homogènes de visiteurs.

3.3. Rayonnement Touristique Comparatif

En comparaison avec d'autres sites touristiques du district des Cataractes, la grotte de Dimba maintient une part de marché relativement faible et stable, oscillant autour de 10% de l'intérêt touristique régional. Le site est nettement dominé par des destinations comme la Ville Sainte de Nkamba, qui capte plus de 40% de la fréquentation, notamment en raison du tourisme religieux. Cette faible compétitivité souligne la nécessité d'une stratégie de valorisation spécifique pour Dimba.

3.4. Perception de la Dégradation et Contraintes

La perception des touristes du niveau de dégradation du site est alarmante. En 2024, **94,2 %** des personnes interrogées indiquent que le site connaît une forte dégradation. L'analyse étaye l'existence d'un lien entre l'intensification de la dégradation et l'augmentation des contraintes d'accès.

3.5. Gouvernance du Site

L'étude révèle une gouvernance très faible du site. Les actions de gestion et de valorisation sont limitées, et les initiatives de réhabilitation annoncées par les pouvoirs publics en 2020 n'ont pas été concrétisées. Le mode de gestion actuel est majoritairement jugé comme « Mauvais » par les visiteurs, la mention « Très bon » ayant disparu des évaluations après 2021. Cette défaillance institutionnelle est un facteur clé de la dégradation et de la baisse de fréquentation.

3.6. Projections de Fréquentation à l'Horizon 2035

Les projections statistiques, basées sur les tendances observées entre 2021 et 2025, indiquent une poursuite de la chute de la fréquentation touristique. Sans intervention, le nombre de visiteurs pourrait être divisé par plus de trois d'ici 2035, avec une valeur projetée de 45,8 visiteurs. Comme discuté dans la section méthodologique, cette projection est assortie d'un intervalle de confiance qui reflète l'incertitude inhérente aux prévisions à long terme basées sur un nombre limité de points de données. Néanmoins, la tendance générale est claire et alarmante, soulignant l'urgence d'une action. Parallèlement, les pressions environnementales risquent de s'intensifier, et les contraintes liées à la fréquentation pourraient atteindre **87 % de saturation**. Ces modèles statistiques valident l'hypothèse selon laquelle la dégradation continue de la grotte de Dimba a un impact négatif sur la dynamique de sa fréquentation touristique.

3.7. Validation Statistique

Le test de Spearman indique une relation entre l'intensification de la dégradation et la baisse de l'intérêt touristique. La Figure 3 visualise cette corrélation

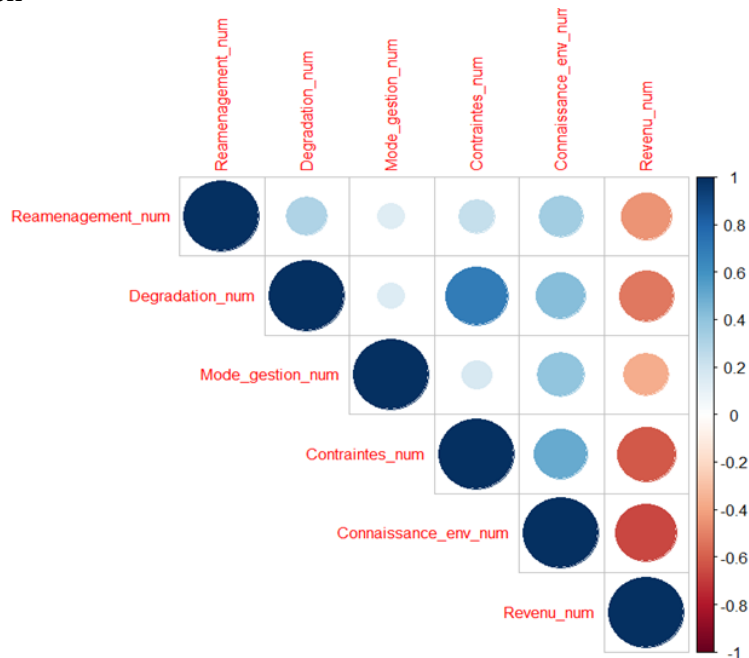


Figure 3 : Matrice de corrélation de Spearman illustrant les relations statistiques entre plusieurs variables distinctes

3.8. Discussion scientifique

Les résultats étayent l'hypothèse d'un impact négatif de la dégradation sur l'attractivité, rejoignant la littérature scientifique qui établit un lien étroit entre la qualité environnementale des sites naturels et leur attractivité touristique (Weigand, 2022). La chute de la fréquentation, ainsi que la faible compétitivité du site par rapport à d'autres destinations régionales, sont des manifestations tangibles de cette dégradation perçue par les visiteurs.

L'analyse des faiblesses de la gouvernance actuelle, jugée unanimement « Mauvaise », est un élément central de cette discussion. Elle met en lumière l'échec du modèle de gestion étatique exclusif, incapable de préserver l'intégrité écologique du site et de garantir une expérience touristique satisfaisante. Ce constat rejoint les critiques formulées à l'encontre des approches de gestion centralisées dans les pays en développement, souvent confrontées à des problèmes de sous-financement, de manque d'expertise et de faible responsabilisation (Salerno, 2021). L'absence d'entretien, les difficultés d'accès et l'exploitation anthropique sauvage sont des symptômes directs de cette défaillance de gouvernance, qui alimente un cercle vicieux de dégradation et de désintérêt touristique.

La situation de la grotte de Dimba, avec son poisson aveugle **Caecobarbus geertsii** en danger, illustre l'urgence d'adopter des modèles de gouvernance durable. Les études sur la gestion des grottes karstiques soulignent l'importance d'une approche intégrée qui concilie conservation de la biodiversité, valorisation touristique et participation des communautés locales (Winiarczyk-Raźniak, 2026). Le modèle de gouvernance partagée et communautaire proposé par cette étude, avec son zonage tripartite, offre une alternative viable au modèle actuel. Il s'inspire des meilleures pratiques internationales en matière de gestion des aires protégées et des sites écotouristiques, où l'implication des parties prenantes locales est reconnue comme un facteur clé de succès (Mazebedi, 2025).

Les projections de fréquentation à l'horizon 2035, bien que soumises à des incertitudes méthodologiques dues au nombre limité de points de données, renforcent l'argumentaire en faveur d'une intervention rapide et structurée. Elles agissent comme un signal d'alarme, soulignant le risque de perte irréversible du potentiel touristique et patrimonial de la grotte de Dimba. La situation du *Caecobarbus geertsii* illustre l'urgence d'adopter des modèles de gouvernance durable. Faute d'une gestion effective, on observe un conflit d'usage complexe.

Conclusion et Recommandations

La grotte de Dimba est à un point de bascule. Les analyses statistiques étayent une trajectoire de déclin rapide de la fréquentation touristique et une intensification des pressions environnementales si le *statu quo* est maintenu.

La survie de son écosystème unique, incluant le *Caecobarbus geertsii*, et son potentiel de classement UNESCO dépendent d'une action immédiate et concertée. Pour inverser cette tendance, l'étude propose un modèle d'aménagement durable basé sur un zonage tripartite et une transition vers une gouvernance partagée :

1. **Zonage Tripartite** : Une nouvelle architecture spatiale est proposée, divisant le site en trois zones distinctes :
 - **Zone de Protection Intégrale** : Sanctuaire scientifique strict pour la conservation de l'habitat du *Caecobarbus geertsii*
 - **Zone Touristique** : Écotourisme aménagé avec infrastructures légères et balisage interne sécurisé.
 - **Zone de Boisement** : Ceinture tampon contre l'érosion physique et la pression anthropique de surface.
2. **Gouvernance Partagée** : Transition d'un modèle unilatéral et coercitif vers un comité multipartite inclusif (État, Chefs de clans Ntoto, Communauté Kimbanguiste) pour des décisions concertées et transparentes. Les populations locales doivent être intégrées comme gardiens rémunérés par l'écotourisme.

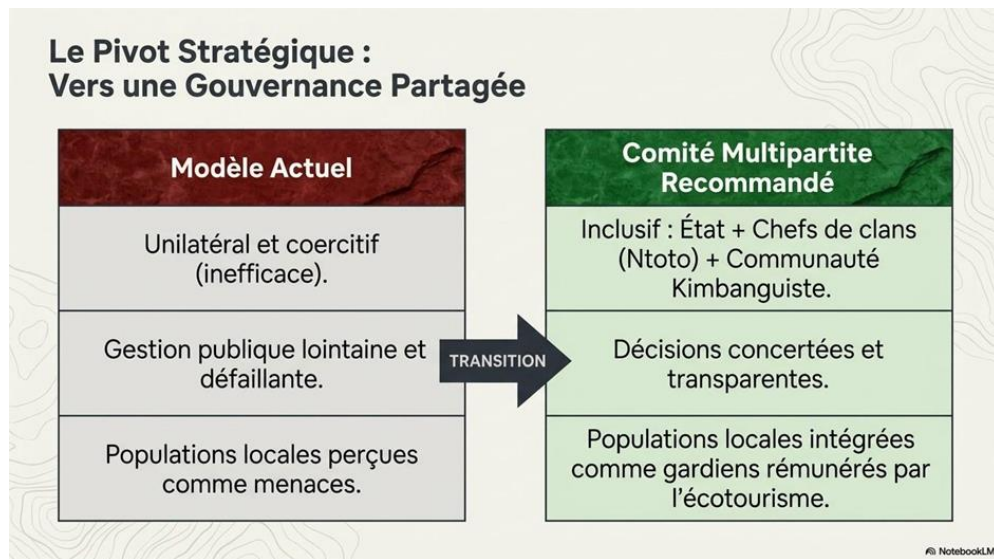


Figure 4 : Le Pivot Stratégique : Vers une Gouvernance Partagée. Ce diagramme illustre la transition d'un modèle de gouvernance actuel inefficace vers un comité multipartite recommandé pour une gestion durable

Ces mesures, combinées à des piliers d'intervention opérationnelle : Science, Infrastructures, Marketing, sont essentielles pour transformer la perception des visiteurs de « Mauvais » à « Excellent » et assurer la viabilité à long terme de la grotte de Dimba.

Conflit d'intérêts : Les auteurs n'ont signalé aucun conflit d'intérêts.

Disponibilité des données : Toutes les données sont incluses dans le contenu de l'article.

Déclaration de financement : Les auteurs n'ont obtenu aucun financement pour cette recherche.

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Appendix



Figure 5 : Perception de la Dégradation du Site en 2024. 94,2 % des visiteurs constatent une forte dégradation, soulignant un consensus critique sur l'état du site



Figure 6 : Analyse des défaillances de la gouvernance (Inertie et pratiques non régulées). Ce schéma met en évidence l'inertie administrative, la tolérance destructrice et les pratiques sauvages comme causes de la défaillance de la gouvernance



Figure 7 : Évolution tendancielle de la fréquentation et des contraintes environnementales (2021-2035). Ce graphique illustre la projection d'une chute drastique de la fréquentation touristique et une saturation des contraintes environnementales d'ici 2035 en l'absence d'intervention

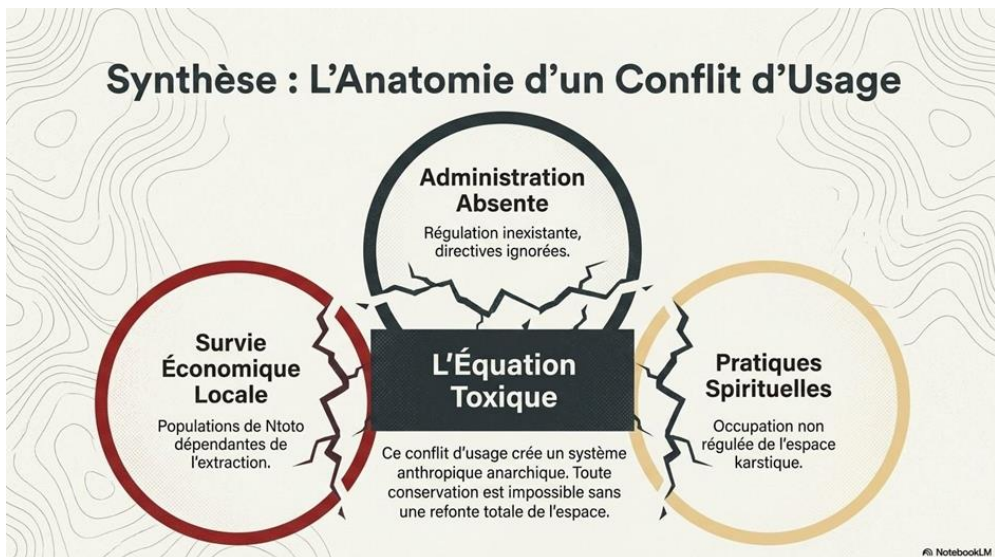


Figure 8 : Synthèse du conflit d'usage entre conservation, économie et pratiques locales. Ce diagramme représente « L'Équation Toxique » résultant de l'administration absente, de la survie économique locale et des pratiques spirituelles non régulées

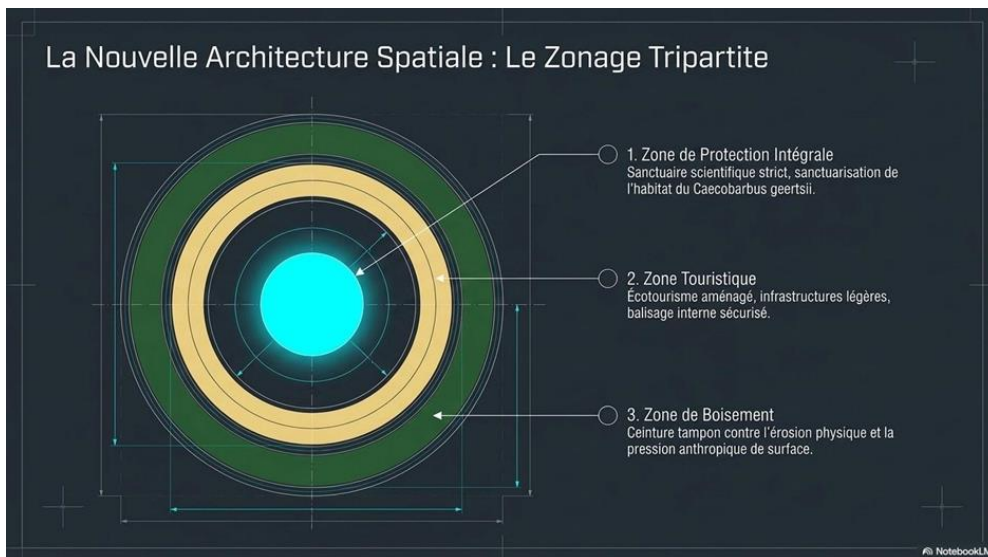


Figure 9 : La Nouvelle Architecture Spatiale : Le Zonage Tripartite. Ce schéma propose une division du site en zones de protection intégrale, touristique et de boisement pour une gestion durable



Figure 10 : Les Piliers d'Intervention Opérationnelle. Ce schéma présente les trois axes d'intervention (Science, Infrastructures, Marketing) nécessaires à la réhabilitation et à la valorisation du site