

FROM CONCEPT FORMATION TO CULTURAL IDENTITY: THE ADDITIVE CASE FOR INDIGENOUS LANGUAGE USE IN CAMEROONIAN EDUCATION AND ITS IMPLICATIONS FOR COGNITIVE DEVELOPMENT

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Abstract

Language policy in Cameroon is conventionally framed around English-French official bilingualism, leaving the country's nearly two hundred and fifty indigenous languages largely absent from serious educational debate. This paper argues that a more productive lens is the distinction between additive and subtractive language practice, and proposes the developmental costs of subtractive practice across two Cameroonian studies. Among primary school children in Bafut, subtractive bilingual children showed no cognitive advantage over monolingual peers in concept formation tasks, performing significantly worse on some classification and cognitive flexibility measures. Among secondary school adolescents in Kumbo Central Sub-Division, indigenous language use was a statistically significant positive predictor of cultural identity formation ($R^2 = .054$, $\beta = .232$, $p < .001$), and qualitative findings suggested this was constrained by punitive attitudes toward mother tongue use in schools. Drawing on Piaget, Vygotsky, Cummins, Erikson, and Nsamenang, the paper argues that, read together, these findings suggest a possible developmental pattern in which cognitive costs in early childhood and cultural identity costs in adolescence may be linked. Because the two studies involve different participants, this pattern is interpretive rather than longitudinal. The paper ultimately offers practical, policy, and theoretical implications for sustained, community-rooted additive language integration across Cameroonian schooling.

Keywords:

Indigenous language; additive bilingualism; subtractive bilingualism; concept formation; cultural identity formation; language policy; Cameroon.

Introduction

Language sits at the centre of many debates about education in Cameroon, but the debate itself is often narrower than the problem it claims to address. Discussions of language



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policy in Cameroon are almost always framed around English and French, the country's two official languages, and around how well schools balance the two. This framing is understandable given Cameroon's colonial heritage, but it leaves out a much larger linguistic reality. Cameroon is home to close to two hundred and fifty indigenous languages (Breton & Fohtung, 1991), and for many Cameroonian children, neither English nor French is the language first spoken at home. When national conversations about language in education stop at official bilingualism, the question of what happens to a child's indigenous language once they enter school is left largely unexamined.

This gap did not appear by accident. Even before European colonialism, the territory that became Cameroon was not linguistically homogeneous; different ethnic groups used various lingua francas for cross-community communication, among them Mungaka in the west, Duala along the coast, and Fulfulde, Hausa, and Shuwa Arabic in the northern savannahs (Echitchi, 2019). This diversity did not disappear under colonial rule, but the status of Cameroon's own languages within formal education did change substantially. During the German protectorate, missionaries and traders initially favoured indigenous languages such as Duala for evangelisation and commerce (Echitchi, 2019).

The end of German rule brought a more decisive shift. Once Britain and France divided the former German territory after the First World War, each administered its portion according to a distinct colonial language policy. The British enforced English while tolerating Pidgin English informally, while the French pursued a more assimilationist policy, actively discouraging the teaching of vernacular languages and, in some cases, closing schools that continued to use them (Echitchi, 2019). Wolf (2001) describes the British administration's policy of indirect rule as one that "first uprooted the traditional societies and then left them in limbo" (p. 82), acknowledging local languages and cultures in principle while doing little in practice to help them thrive within the education system. Reunification in 1961 did not resolve this tension so much as formalise it. Rather than building an education system around Cameroon's own linguistic wealth, the newly unified nation adopted official bilingualism in English and French as a pragmatic solution to the need for cohesion between two differently colonised territories. Echitchi (2019) further identifies the forces that have sustained this arrangement since independence as both internal and external. Internally, the drive for national integration led government to see the promotion of any single indigenous language as a potential threat to unity, since doing so risked appearing to favour one ethnic group over Cameroon's many others; this concern was compounded by the sheer number of languages involved and by how few of them had been formally standardised for classroom use. Indigenous languages also came to carry markedly lower social prestige than English or French, weakening families' own motivation to insist on their use in school. Externally, the continued cultural and diplomatic influence of France and Britain, alongside the global rise of English as an international lingua franca, reinforced the practical value of colonial language proficiency over indigenous language competence (Echitchi, 2019).

This is not to say indigenous language promotion has been entirely absent from Cameroonian education policy. The Operational Research Project for the Teaching of Cameroonian Languages, known by its French acronym PROPELCA, was established

specifically to develop the teaching of local Cameroonian languages within the school system (PROPELCA, 1995), and broader discussion of mother tongue education in Cameroon has continued in the scholarly literature for decades (Mba & Chiatoh, 2000). Yet Chiatoh (2014) argues that Cameroon's sheer linguistic complexity, close to two hundred and fifty languages, most enjoying only minority status within their own regions, has left successive governments too cautious to build a well-articulated, sustained language policy. Existing legislation, in his assessment, continues to favour foreign language education by default, not because indigenous languages are legally excluded, but because no sustained institutional mechanism exists to make their inclusion the norm rather than the exception. Chiatoh's (2014) proposed alternative, the community response framework, argues that successful integration of indigenous languages into schooling depends less on national policy pronouncements than on planned participation by local communities, with the language committee serving as the practical vehicle for this participation.

Beyond policy and pedagogy, the marginalisation of indigenous languages in Cameroonian education carries a philosophical and psychological weight that is easy to overlook. Kishani (2001) argues that Africans have too often approached their own linguistic heritage from a borrowed vantage point, taking pride in the mastery of English or French while rarely questioning why so many educated Africans use these languages to the exclusion of any African language at all. He warns that discouraging African languages carries real practical and psychological consequences, among them a sense of inferiority among those who speak and write them. Ngũgĩ wa Thiong'o (1986) frames this same alienation still more starkly, describing the effect of linguistic displacement as a kind of cultural bomb that leads a people to see their own past as a wasteland and to identify instead with languages and heritages not their own.

It is against this background that the present paper situates its argument. The paper argues that the gap between Cameroon's occasional gestures toward indigenous language promotion and the lived reality inside its classrooms reflects a deeper conceptual limitation in how the country has approached its own language question: one that treats indigenous language provision, where it exists at all, as an early, temporary bridge into English or French rather than as a resource to be sustained and built upon throughout a child's schooling. This is the distinction between subtractive and additive language practice, a distinction this paper argues is essential to understanding both why existing interventions have fallen short and what a more effective approach might look like.

Statement of the Problem

Despite periodic policy gestures toward indigenous language promotion, Cameroonian classrooms remain overwhelmingly subtractive in practice: indigenous languages are, at best, a brief early presence before official-language instruction takes over entirely, and at worst actively discouraged once a child is old enough to be assumed fluent in English or French. What has not been established empirically is what this subtractive pattern actually costs a child across the years of schooling, cognitively in the early stages, and developmentally as the child approaches adolescence. Two independently conducted

Cameroonian studies, one examining concept formation among Bafut primary school children (Angu, 2019), the other examining cultural identity formation among Kumbo secondary school adolescents (Billa, 2026), offer an opportunity to examine this pattern interpretively across two developmental stages, although they involve different children and their findings have not previously been read together. This paper addresses that gap, guided by two research questions:

1. How does concept formation differ between children who experienced subtractive bilingual education and monolingual peers in Bafut?
2. To what extent does indigenous language use predict cultural identity formation among secondary school adolescents in Kumbo Central Sub-Division?

Literature Review

This section briefly reviews literature in relation to the additive and subtractive framework of bilingual education, alongside discussing some empirical studies that have been conducted in this direction and the theoretical foundations of the study.

The Additive and Subtractive Framework

At its simplest, additive language practice treats a child's first language as something to be retained and strengthened even as a second or additional language is introduced, while subtractive practice treats the first language as something to be phased out, deliberately or through neglect, as the new language takes hold (Angu, 2019). This distinction matters because it reframes what is often discussed in Cameroon as a single, undifferentiated question, whether indigenous languages belong in schools at all, into a more precise one: under what conditions does indigenous language exposure actually benefit a child, and under what conditions does it not.

This tension is not new, nor confined to institutional policy; it appears even in the biography of individual Cameroonian intellectuals. Kishani (2001) illustrates it through the example of the Cameroonian philosopher and statesman Bernard Fonlon, who insisted that valuing English for practical purposes did not require abandoning devotion to Lamnso', his own mother tongue, and who resisted the assumption that adopting a European language automatically meant adopting European cultural values. Yet Kishani (2001) also observes that Fonlon's own practice, philosophising almost exclusively in English despite this stated position, illustrates just how difficult that balance is to sustain even for someone deeply committed to it, and how easily good intentions toward indigenous language promotion can, in practice, end up reinforcing the very colonial linguistic order they set out to resist.

Evidence from more recent Cameroonian classrooms shows both sides of this framework playing out directly. Nchang's (2022) study of primary school teachers in Bafut documents what subtractive practice looks like when it is enforced punitively rather than simply allowed to lapse. In one classroom, she observed, a child who counted correctly in Bafut rather than English was made to sit down in front of a laughing class and later refused to return to school without her mother accompanying her. In another, a child who correctly named a fruit in Bafut was mocked by her teacher and made to repeat the

English word amid classmates' laughter. These are not isolated behavioural incidents; they are the lived realities through which subtractive language policy is enforced at the classroom level, and they show that the costs of subtractive practice are not only cognitive but also immediate and emotional, discouraging children from participating in their own education at the exact moment they are being asked to engage with unfamiliar academic content.

Where indigenous language use was permitted, even informally through code-switching between English and Bafut, Nchang (2022) observed a markedly different classroom atmosphere, one she described as warm and stress-free, with children eager to participate rather than withdrawn. This finding is corroborated by Ngole et al. (2024), whose study of Akoose-speaking pupils in the South West Region compared pilot schools using mother tongue instruction against non-pilot schools using English only. Pupils in the pilot schools not only performed better across school subjects generally but also outperformed their non-pilot counterparts in English itself. This finding directly contradicts the assumption that indigenous language use comes at the cost of official language proficiency. The majority of pupils, teachers, and parents in their study expressed a clear preference for mother tongue instruction, and teachers reported markedly higher classroom participation and attentiveness when Akoose was used as the medium of instruction. A comparable pattern appears in Ntuli and Mudau's (2024) study of an indigenous language register used in South African science classrooms, where genuine, sustained indigenous language use sharply improved learner participation, discourse, and engagement relative to English-only instruction.

Cummins (1984) offers a theoretical account of why this pattern holds. His linguistic interdependence principle argues that a child's first language provides the cognitive and linguistic foundation on which a second language, and the academic and cultural competencies built through it, are constructed. A child who first develops strong competence in their indigenous language is, as a result, better cognitively prepared to acquire a second language. This counters the assumption embedded in Cameroon's subtractive default that indigenous language exposure comes at English's expense.

The body of evidence sharpens the additive and subtractive distinction from a conceptual tool into an empirically grounded one. Subtractive practice, whether through structural neglect or active classroom punishment, is associated with measurable cognitive costs, as later sections of this paper show among Bafut children (Angu, 2019), and participatory and academic costs, as shown among both Bafut and Akoose-speaking children (Nchang, 2022; Ngole et al., 2024). Additive practice, wherever it has been permitted to function, whether informally through teacher-led code-switching or formally through sustained pilot programmes, has produced the opposite: stronger participation, better academic outcomes, and no evidence of harm to second-language acquisition.

Theoretical Framework

This paper draws on five theoretical strands to interpret the developmental pattern it proposes.

In the first place, Piaget's (1929, as cited in Angu, 2019) account of schemas holds that children's conceptual representation of experience, their knowledge, their present understanding of the world, is stored in mental structures built up through interaction with their environment. Children do not build these structures in a vacuum; they build them through language, and specifically through whichever language mediates their earliest, most formative encounters with the world. This theoretical premise is directly relevant to interpreting what happens when a child's first language is withdrawn mid-construction, as in the case of the Bafut primary school pupils.

Secondly, Vygotsky's (1978) theory of cultural mediation sharpens this point. For Vygotsky, cognitive development is not something that happens to a child independently of language; it happens through language, and through the broader cultural tools, symbols, and social interactions a language carries with it. A child's first language is not simply a communication tool that can be exchanged for another without cost, it is the medium through which higher mental functions (classification, comparison, abstraction) are first internalised. This theory is directly relevant to this paper's cognitive findings, since tasks requiring the flexible manipulation of categories and rules are precisely the kind of higher-order cognitive function Vygotsky's theory predicts would be most vulnerable to disruption in a child whose linguistic and cultural mediation was interrupted rather than sustained.

Cummins' (1984) linguistic interdependence principle is relevant not only to explaining classroom participation outcomes but to the paper's broader developmental argument: if a first language provides the foundation on which later linguistic and cognitive competence is built, then undermining that foundation does not simply remove a resource, it constrains what can be built on top of it, cognitively in childhood and, this paper argues, culturally in adolescence.

Erikson's (1968) theory of identity versus role confusion frames adolescence as the developmental stage in which a young person must draw together their past experiences, present environment, and future aspirations into a coherent sense of self. Erikson's framework is directly relevant to interpreting the Kumbo findings discussed later in this paper, since a young person cannot easily build a stable, positive cultural identity around a language they have been conditioned, through direct classroom experience, to feel ashamed of.

Finally, Nsamenang's (1992) Eco-Cultural Theory of Social Ontogenesis provides an African-centred account of identity development. Nsamenang argues that African children develop competence and identity primarily through active, sociogenic participation in their cultural environment, not through solitary internal reflection. This theory is directly relevant to understanding why institutional constraints on indigenous language use (examinations set only in English or French, classrooms with mixed ethnic

composition, and teachers' own limited fluency in indigenous languages) matter so much: they structurally prevent the kind of sustained cultural participation Nsamenang's theory holds is necessary for healthy identity development.

These five theoretical strands come together on a single claim this paper develops across its findings and discussion: that a child's first language is not incidental to either cognitive or cultural development, but foundational to both, and that subtractive treatment of that language may carry costs that begin in early cognition and extend, by adolescence, into cultural identity itself.

Methodology

This paper adopts a narrative synthesis design. Rather than statistically pooling results, an approach unsuited to studies with different designs, samples, and outcome measures, this paper draws on two independently conducted primary studies undertaken by the authors and interprets their findings together under the shared theoretical framework outlined above, in order to examine an interpretive developmental pattern across two stages of schooling.

The first study (Angu, 2019) used a quasi-experimental, non-equivalent control group design among 20 primary school children aged seven to eight in Bafut, in Cameroon's North West Region. Ten children, bilingual in Bafut and English, had received mother tongue instruction through class four before shifting to English-medium instruction from class five onward; ten children, monolingual in English, served as the comparison group. Both groups were assessed on four concept formation tasks: a dimensional change card sorting task, a symbol substitution task, an object classification task, and a linear measurement task. Response time and error rates were compared between groups using the Mann-Whitney U test.

The second study (Billa, 2026) used a concurrent mixed methods design among 328 students and 10 teachers and administrators across six secondary schools in Kumbo Central Sub-Division, also in the North West Region. Students completed a structured questionnaire measuring indigenous language use and cultural identity formation, analysed using simple linear regression; teachers and administrators were interviewed using a semi-structured guide, analysed thematically.

For the purposes of this paper, the two studies' findings were brought together around their shared underlying variable, the degree to which indigenous language use was sustained or withdrawn within each schooling context, and interpreted through the theoretical framework outlined above to examine whether a consistent interpretive pattern can be drawn across the two stages of schooling these samples represent.

It is important to note that the two samples consist of different children in different locations, so this paper does not offer longitudinal evidence and cannot show that the same children moved from early cognitive difficulty to later identity difficulty. The developmental pattern discussed here is therefore a theoretical and interpretive one, built by reading two independent sets of findings together through a shared framework.

Whether the pattern holds within the same individuals over time remains a question for future longitudinal research.

Findings

This section presents the core findings from both studies underpinning this paper. It begins with the cognitive findings from the Bafut primary school sample, followed by the descriptive and inferential findings on indigenous language use and cultural identity formation from the Kumbo secondary school sample, and closes with a discussion of how each set of findings connects to identity formation specifically.

Cognitive Findings: Concept Formation among Bafut Children

Table 1 below presents Angu's (2019) comparison of concept formation task performance between subtractive bilingual and monolingual children.

Table 1

Comparison of Concept Formation Ability between Subtractive Bilingual and Monolingual Children

Task	Subtractive Bilingual (N=10)	Monolingual (N=10)	Mann-Whitney U	p
Classification task time (s), M ± SEM	60.60 ± 4.44	55.00 ± 3.31	33	.196
Classification task error, M ± SEM	1.00 ± 0.00	0.50 ± 0.17	25	.012
Dimension change card sorting time (s), M ± SEM	39.30 ± 3.35	37.20 ± 3.98	16	.010
Dimension change card sorting error, M ± SEM	0.50 ± 0.27	0.20 ± 0.13	43	.485
Symbol substitution time (s), M ± SEM	45.50 ± 2.32	44.70 ± 1.54	46.5	.790
Symbol substitution error, M ± SEM	0.90 ± 0.38	1.00 ± 0.36	48	.872
Linear measurement (rope), M ± SEM	1.00 ± 0.00	1.00 ± 0.00	50	.000
Linear measurement (ruler), M ± SEM	1.00 ± 0.00	0.90 ± 0.10	45	.317
Total time for concept formation, M	146.40	137.90	18.5	.017
Total error for concept formation, M ± SEM	3.40 ± 0.45	2.60 ± 0.52	33	.190

Note. N = 20 (n = 10 per group). M = mean; SEM = standard error of the mean. Adapted from Angu (2019)

Subtractive bilingual children took significantly longer than monolingual children to complete the concept formation battery overall ($p = .017$), with the difference concentrated in the classification error rate ($p = .012$) and the dimension change card sorting time ($p = .010$). The overall pattern, longer completion time and higher error rates among subtractive bilingual children, ran contrary to the general expectation in the bilingualism literature that bilingual children outperform monolinguals on tasks requiring cognitive flexibility and categorisation.

Cultural Identity Findings: Indigenous Language Use among Kumbo Adolescents

Table 2 presents students' perceptions of how indigenous language use is treated within their school environment, drawn from Billa (2026).

Table 2

Descriptive Statistics on Indigenous Language Use in School

Item	Mean	SD
I feel free to speak my native language with my friends during break time.	2.28	1.23
Our teachers allow us to use our native language to explain things we don't understand well in English.	1.54	0.75
I am not punished or embarrassed if I use my mother tongue in school.	1.58	0.75
Our school provides opportunities for us to learn our native languages better.	2.40	1.15
Our school encourages us to speak our local language correctly.	2.37	1.02

Note. N = 328. Items were rated on a four-point likert Scale from Strongly Agree to Strongly Disagree. Source: Data from Billa (2026).

The results in Table 2 suggest that indigenous language use is restricted within the school environment. The lowest mean ($M = 1.54$, $SD = 0.75$) relates to teachers allowing students to use their native language to clarify difficult concepts. A similarly low mean ($M = 1.58$, $SD = 0.75$) relates to the item stating that students are not punished or embarrassed for using their mother tongue; because the item is worded positively, a low mean indicates that students tended to disagree, that is, that they experienced punishment or embarrassment. Students also reported low freedom to speak their native language with friends during break time ($M = 2.28$, $SD = 1.23$), and their ratings of school support for learning and correctly speaking the local language were similarly low ($M = 2.40$ and $M = 2.37$).

Table 3 presents the regression results testing regression results testing whether indigenous language use predicts cultural identity formation.

Table 3*Regression Summary for Indigenous Language Use Predicting Cultural Identity Formation*

R	R²	F(1, 326)	B	β	t	P
.232	.054	18.474	.256	.232	4.298	< .001

Note. Dependent variable: cultural identity formation. Predictor: indigenous language use. Data from Billa (2026).

Indigenous language use was a statistically significant positive predictor of cultural identity formation ($\beta = .232, p < .001$), accounting for 5.4% of the variance. The regression model itself was significant overall ($F(1, 326) = 18.474, p < .001$), and each one-unit increase in indigenous language use was associated with a 0.256-unit increase in cultural identity formation.

Qualitative interview data gathered alongside these results identified three themes. The first, Cognitive “Sinking,” captured teachers’ belief that learning through an indigenous language allows knowledge to be retained and applied more deeply, with one teacher explaining that when students learn in their native language, “the knowledge sinks and it can stay and it can be used in various ways.” The second and most dominant theme, Language Implementation Issues, identified by six of the ten teachers interviewed, centred on the structural barriers preventing fuller indigenous language use: English and French dominance in national examinations, the difficulty of translating complex academic concepts, and the linguistic diversity within individual classrooms. One teacher noted that examinations such as the GCE are written strictly in English or French, while another worried that instruction in the indigenous language could disadvantage students from outside the dominant local ethnic group. The third theme, Localised Nationalisation, reflected a proposed policy compromise: one teacher suggested that the most widely spoken indigenous language within each division or subdivision could be used for instruction up to a defined level, balancing local linguistic reality against national curriculum requirements.

Linking the Findings to Identity Formation

The two sets of findings measure different constructs. Concept formation is a cognitive process, cultural identity formation is a psychosocial one, and the findings come from different children in different places. They can nevertheless be read together as pointing to related difficulties under subtractive language conditions, one in the mental structures a child builds in the early years of school, the other in adolescents’ social experience of their own language. The Discussion develops this reading through the theoretical framework set out earlier.

Discussion

Piaget’s account of schemas (as cited in Angu, 2019) helps explain the Bafut findings at the level of mental structure. Concept formation develops in close connection with the language a child first learns to think in. When that language is withdrawn before it is fully consolidated, as happened with the subtractive bilingual children in Angu’s (2019)

sample, the child may lose more than fluency: the scaffolding through which later cultural and personal understanding is built may also be weakened.

Vygotsky's (1978) theory of cultural mediation sharpens this reading further. Vygotsky's account of higher mental functions as language-mediated is consistent with the pattern Angu's (2019) data show most clearly: subtractive bilingual children performed significantly worse specifically on the classification task, and took significantly longer on the dimensional change card sorting task, precisely the higher-order cognitive functions, classification, flexible rule-switching, that Vygotsky's theory predicts would be most vulnerable to disruption in a child whose linguistic and cultural mediation was interrupted rather than sustained.

This cognitive disruption matters for the argument of this paper not because concept formation is itself identity formation, but because it establishes the developmental ground on which identity formation later depends. As Erikson's (1968) account of adolescence as the stage of identity versus role confusion suggests, a child who enters this stage after earlier disruption to cognitive and linguistic foundations may not arrive at adolescence on equal footing with a child whose linguistic development proceeded additively. The cognitive cost documented in Bafut may not therefore be a separate phenomenon from the cultural identity cost documented in Kumbo; it may be an earlier and less visible sign of the same process.

The Kumbo findings extend this disruption into more explicitly social and psychological territory. Where Angu's (2019) data show what happens inside a child's cognitive architecture, Billa's (2026) data show what happens to a young person's relationship with their own culture when a similar subtractive logic appears to persist, in a different institutional form, in secondary school. Erikson's (1968) theory again offers the most direct lens: he argues that adolescents actively search for cultural materials with which to answer the question of who they are, and that confusion intensifies when a young person's ethnic or cultural identity is already unstable or unsupported by their environment. The Kumbo findings show this destabilisation happening through direct, repeated social experience rather than abstract policy failure. The low mean of 1.58 on the item measuring whether students feel punished or embarrassed for using their indigenous languages is evidence of a lived psychological pattern consistent with the inferiority Kishani (2001) warned discouraging African languages produces, adolescents receiving consistent, embodied confirmation that their own language, and by extension their cultural belonging, carries less worth within the institution that occupies most of their waking hours.

Nsamenang's (1992) Eco-Cultural Theory of Social Ontogenesis offers a second, complementary reading of the Kumbo findings. Nsamenang describes identity as developed through active, sociogenic participation in one's cultural environment. The teachers interviewed did not deny the cultural or cognitive value of indigenous language, but they described an institutional environment (examinations set only in English or French, classrooms of mixed ethnic composition, and limited teacher fluency in indigenous languages) that restricts the kind of sustained cultural participation Nsamenang's theory holds to be necessary for healthy identity development. The problem

the Kumbo data reveal, then, is not that adolescents lack access to cultural knowledge outside school. It is that the school, as a central site of participation in a young person's daily life, may be organised in a way that works against the sociogenic process Nsamenang describes.

But why did indigenous language use explain only 5.4% of the variance in cultural identity formation in Kumbo, a statistically significant but modest figure, when the qualitative evidence surrounding it paints such a stark picture of suppression? Cummins' (1984) linguistic interdependence principle offers the clearest answer. If a first language provides the cognitive and linguistic foundation on which later competence is built, then undermining that foundation does not simply remove a resource, it constrains what the system built on top of it can achieve. Applied here, the weak statistical effect observed in Kumbo need not mean that indigenous language use matters little to cultural identity formation. It may instead reflect the fact that indigenous language use, as currently practised in Kumbo's secondary schools, is so restricted that its potential effect on identity formation has little statistical room in which to appear. A variable held at the low end of its own scale cannot easily produce a large regression coefficient, even if the underlying relationship is stronger than the figure suggests.

This interpretation is consistent with settings where indigenous language use has been given real functional space, such as the Akoose pilot schools (Ngole et al., 2024) and South African science classrooms (Ntuli & Mudau, 2024), both discussed earlier. Where the variable was allowed to vary meaningfully, its effects were more visible than Kumbo's restrictive environment currently permits.

This reading also helps explain why Cameroon's long policy history on indigenous languages has produced so little change in lived classroom experience. Chiatoh (2014) argues that the country's linguistic complexity has left successive governments too cautious to build the sustained, well-resourced policy that additive practice requires, so that promotion has depended on community initiative that was never resourced to match its ambition. The classroom evidence reviewed earlier suggests this default is not fixed. Where Bafut teachers allowed code-switching, the classroom atmosphere shifted toward warmth and participation (Nchang, 2022). This is small-scale evidence, but it is consistent with the view that the pattern proposed in this paper can be interrupted at the level of classroom practice, before any large-scale policy reform.

Several limitations should be kept in mind. In the first place, the two studies involve different participants in different locations, so the paper cannot show a within-child pathway from early concept formation to later cultural identity. Secondly, the Bafut study is small (20 children) and used non-equivalent groups, so its results should be read with caution. Also, the Kumbo study is cross-sectional and based largely on self-report, so the regression result describes an association and does not necessarily establish cause. Finally, both samples come from the North West Region, and the findings may not hold in other language communities. These limits are why the paper presents its developmental account as an interpretation and why it calls for longitudinal research.

Implications of the Study

Several implications follow from these findings, for classroom practice, for policy, and for theory. For teachers, the clearest and most immediate implication is that permitting indigenous language use in the classroom, even informally through code-switching, carries real developmental value and requires no policy change to begin. Nchang's (2022) Bafut observations suggest this is a change within individual teachers' discretion, requiring no new curriculum, examination structure, or funding.

Removing punitive and shaming responses to indigenous language use, the practice most directly implicated in the Kumbo findings, particularly around the stereotype students referred to as the "Banso' tongue," is a similarly immediate step teachers can adopt. For school administrators, the implication is to create deliberate, sanctioned space for indigenous language use in informal school settings, particularly in moments where students are working through difficult academic concepts and may reason more clearly in the language they think most fluently in, and, where feasible, to extend this support into the early secondary years rather than allowing it to end abruptly at the primary-secondary transition, addressing the structural discontinuity this paper has identified as central to the subtractive pattern.

Beyond the classroom, the findings carry weight for policy. They suggest that language policy needs to shift its focus from access to continuity. PROPELCA reached many schools and languages, but it confined indigenous language instruction to the first four years of primary school, which is the subtractive structure the Bafut findings associate with weaker concept formation outcomes. The Akoose pilot (Ngole et al., 2024) shows what sustained use can achieve, and Chiatoh's (2014) community response framework suggests how: policymakers should channel resources through community language committees, not only through centrally run programmes that are vulnerable to funding cycles. Examination policy is a further lever. While national examinations remain exclusively in English or French, teachers will continue to face the disincentive described in the qualitative findings, however strongly they value indigenous language instruction.

Finally, the findings carry theoretical implications. They extend Cummins' interdependence principle beyond its usual focus on bilingual cognition into the domain of cultural identity formation, suggesting that a first language's foundational role applies not only to later academic and linguistic competence but to a young person's capacity to construct a stable cultural identity. They also demonstrate that Erikson's identity versus role confusion framework and Nsamenang's eco-cultural, participatory account of African development are complementary rather than competing, Erikson describing the developmental stakes of identity formation, Nsamenang describing the participatory mechanism through which a supportive or unsupportive school environment produces its effect. The paper's central contribution, interpreting a single subtractive language pattern across two developmental stages and two outcome domains, points to a clear direction for future research: longitudinal designs capable of testing directly whether the cognitive costs of subtractive bilingualism in early childhood predict weaker cultural identity outcomes in the same children by adolescence, a link this paper has argued theoretically but which only longitudinal data could confirm.

Conclusion

This paper has argued that Cameroon's language question, as it concerns indigenous languages specifically, is best understood not through the familiar lens of English-French official bilingualism but through the distinction between additive and subtractive language practice. Drawing on a primary-level study of concept formation among Bafut children and a secondary-level study of cultural identity formation among adolescents in Kumbo, this paper has shown that subtractive treatment of indigenous languages is associated with a cognitive cost among the Bafut children studied, and with weaker conditions for cultural identity formation among the Kumbo adolescents studied. Evidence from Bafut classrooms and Akoose pilot schools further shows that these costs are not inevitable. Where indigenous language use has been permitted or deliberately sustained, even briefly or informally, its effects run in the opposite direction, toward stronger participation, better academic outcomes, and no evidence of harm to English proficiency.

These are not two unrelated findings. They can be read as two points on a possible developmental trajectory, one that Cameroon's considerable but structurally limited policy efforts around indigenous language promotion have not yet managed to interrupt. But since the findings come from different children in different places, this trajectory is offered as an interpretation, not as a demonstrated pathway. A genuinely additive approach to indigenous language integration, sustained consistently from primary through secondary education, and rooted in local community ownership rather than dependent on national policy alone, offers a more promising path forward, one this paper hopes will inform how future language policy, teacher practice, and classroom culture in Cameroon are shaped.

Recommendations

Based on the evidence and argument developed in this paper, several recommendations follow, directed at policymakers and curriculum planners, school administrators, teachers, teacher education institutions, and future researchers alike. Policymakers and curriculum planners should invest in developing standardised teaching materials, bilingual dictionaries, and assessment tools in a wider range of Cameroonian languages, prioritising languages with existing community-level infrastructure, such as language committees, to build from, and should support the community response model directly, channelling resources through local language committees and associations rather than relying solely on top-down national programming. School administrators should remove punitive or discouraging practices surrounding indigenous language use in informal school settings, and communicate this change clearly to staff and students. Teachers should permit and encourage code-switching between English and students' indigenous languages, particularly when students are working through difficult concepts, rather than requiring English-only responses at all times, and should avoid correcting or drawing negative attention to indigenous language use in the classroom, given the documented effect of such practices on student participation and confidence. Teacher education institutions should incorporate training on additive bilingual pedagogy and code-switching as a legitimate instructional strategy into pre-service and in-service teacher training programmes, so that individual teachers are not left to navigate this choice

without guidance or support. Finally, future research should extend this interpretive analysis beyond Bafut and Kumbo to other Cameroonian language communities, to test whether the cognitive-to-cultural pattern identified here holds more broadly, and should investigate longitudinally whether children who experience sustained additive bilingual education from primary through secondary school show measurably different cultural identity outcomes in adolescence than those who experienced the subtractive pattern documented in this paper.

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