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Environmental Print and the Development of L2 French Reading in Multilingual Senegal

El texto ambiental y el desarrollo de la alfabetización en francés como segunda lengua en el Senegal multilingüe

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Abstract:
This article is derived from and expands upon research originally presented in the doctoral thesis “From Home to School: Bridging the Literacy Gap in L1 Wolof Child Learners of L2 French in Senegal” submitted by Moustapha Fall to the Faculty of Graduate and Postdoctoral Studies at the University of British Columbia, Vancouver (2014). It examines the critical role of home literacy and environmental print in early reading development and its implications for second language (L2) French acquisition in Senegalese schools. Prior research highlights that children’s early exposure to print-rich environments significantly shapes their reading readiness and long-term literacy success. However, the degree of such exposure varies widely across cultural contexts, with substantial effects on children’s familiarity with print and early alphabet knowledge. Drawing on a recent experimental study published in 2020, this paper investigates the linguistic and cognitive factors contributing to Senegalese students’ difficulties in reading French as an L2. The study, conducted with both schoolchildren and their parents, evaluates how early home reading practices and exposure to environmental print influence L2 reading development. Findings reveal that limited environmental print and inconsistent parental engagement in early literacy activities pose significant challenges to young learners’ reading comprehension in French. The article concludes by outlining the specific reading difficulties encountered by elementary students and emphasizing the need to consider environmental print as a foundational component of effective L2 reading instruction.

1- Introduction

Environmental print constitutes one of the most powerful yet underexamined predictors of second language (L2) reading development in multilingual postcolonial contexts. In Senegal, where French functions as the official language of instruction but is not the primary language of the home for most children, early disparities in print exposure create structural inequalities that shape later academic outcomes. This article argues that environmental print and early home literacy practices are not peripheral supports but foundational determinants of L2 French reading acquisition. Drawing on an experimental study conducted with elementary schoolchildren and their parents, the analysis demonstrates that limited exposure to French print, minimal interactive reading practices, and sociolinguistic ambivalence toward French collectively generate a cumulative disadvantage in reading comprehension. At the same time, early Qur'anic schooling provides transferable decoding skills that partially compensate for the absence of French environmental print, illustrating the cross-linguistic interdependence of literacy development. Taken together, the findings reposition environmental print as educational infrastructure rather than a secondary variable in L2 acquisition.

Research in early literacy has consistently demonstrated that children's reading success depends heavily on the literacy environments they encounter prior to formal schooling (Adams, 1990; Snow, Burns, & Griffin, 1998). Environmental print—the written language embedded in daily life through books, labels, signs, religious texts, and informal writing practices—introduces children to the symbolic and functional dimensions of literacy long before they receive explicit instruction. Through repeated exposure, children develop orthographic awareness, phonological sensitivity, letter knowledge, and an understanding that print carries meaning. Adams (1990) argues that the strongest predictor of first-grade reading achievement is the extent of prior knowledge about print that children bring to school. While this insight has been widely accepted in first-language (L1) literacy research, its implications for L2 reading in multilingual African contexts have not been sufficiently theorized. In settings such as Senegal, where the language of schooling diverges from the language of the home, children are often required to decode, comprehend, and internalize a linguistic system to which they have had little prior exposure. This dual cognitive demand—learning to read and

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learning the language simultaneously—amplifies the importance of early environmental print.

L2 reading research has increasingly acknowledged that foundational literacy processes are shared across languages, even when surface structures differ (Grabe, 2009; Koda, 2005). Vocabulary knowledge, for example, is a robust predictor of reading comprehension across languages (Ishii & Schmitt, 2009). Similarly, letter knowledge and phonological awareness strongly predict decoding fluency (Treiman et al., 2001). These component skills do not emerge spontaneously in most children; rather, they are cultivated through sustained exposure to print and interactive mediation by adults. Studies of home literacy environments reveal striking disparities in access to books and literacy engagement. Feitelson and Goldstein (1986) found that children in low-performing communities often lacked even a single book at home, whereas children in higher-performing communities were surrounded by dozens. Such differences are not trivial: they represent unequal distributions of cognitive preparation. When literacy is normalized in everyday life, children internalize reading as a meaningful social practice. When it is absent, literacy becomes an abstract, school-bound activity disconnected from lived experience. Before exploring the role of teaching strategies employed by Senegalese instructors, it is crucial to first examine the specific reading comprehension difficulties encountered by young students in elementary school.

This paper addresses the role of environmental print in L2 French reading development in Senegal and how the lack of its development contributes significantly to reading difficulties at school. It starts with a short literature review on the issue of environmental print, followed by the methodology regarding the population sample, instrument, procedure, and results.

2-Literature Review

1-2 Senegalese Context of Multiliteracy

The Senegalese context offers a compelling case for examining how environmental print intersects with L2 acquisition. French, though institutionally dominant, is not the primary language of most households, where Wolof and other national languages prevail. Consequently, many children enter French-medium schools without prior exposure to French

print. However, a substantial proportion attend Qur'anic schools (Daaras) before enrolling in formal education. In these settings, children engage in intensive recitation and memorization of Arabic texts, developing early decoding skills and phonological awareness. Although Arabic and French differ orthographically and linguistically, the cognitive processes involved in decoding—attention to grapheme-phoneme correspondences, rhythmic segmentation, and sustained print engagement—are transferable. This phenomenon aligns with Cummins' (1979) Linguistic Interdependence Hypothesis, which posits that underlying cognitive and academic proficiencies developed in one language can support literacy development in another. Koda's (2005) Interactive-Compensatory Model further suggests that strong lower-level processing skills can mitigate weaknesses in higher-level linguistic knowledge. Thus, early Qur'anic literacy may provide structural cognitive advantages even when exposure to French print is minimal.

It is import to note in the 1970s, researchers seeking solutions to children's reading difficulties primarily focused on first language (L1) reading, while research on second language (L2) reading was nearly nonexistent. Later, as researchers began investigating challenges faced by L2 readers, their work was largely influenced by prior studies on L1 reading. Although it is now widely acknowledged that L1 and L2 reading differ in many ways (e.g., Grabe, 2009; Koda, 2005), much of the research on L2 reading continues to be shaped by findings from L1 reading studies.

One key finding in L1 reading research is that vocabulary knowledge is crucial for comprehension. As Ishii and Schmitt (2009) noted, a strong vocabulary base is "essential for learners wishing to function at a high level in English" (p. 6). Treiman and colleagues (2001) have demonstrated that knowledge of letters can facilitate both decoding skills and, most significantly, reading (Treiman et al., 2001). Moreover, if the home is filled with reading activities (e.g., note-writing, list-making, internet-surfing), children will be more inclined to accept reading as a normal way of life rather than as a foreign concept introduced only when they begin school (Adams, 1990). Feitelson & Goldstein (1986) found that 60% of pre-school children from neighborhoods in Israel where children perform poorly in later grades did not have a single book in their homes. In contrast, pre-school children from neighborhoods where children tended to do well in school had families who owned, on average, 54 books each (Feitelson & Goldstein, 1986, pp. 924-930, as cited in McBride-Chang, 2004, p.50).

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Besides the Israeli case, home literacy is well implemented in most African (e.g., Senegal, Mali, Mauritania) and Asian countries (e.g., China, Hong Kong, and Singapore). In China, for example, many families have devoted special "reading corners" at home where children can incorporate print in their play by making tickets for a puppet show or signing their names on artwork (Li & Rao, 2000).

The case of China resembles Senegal in many respects because these "corner schools" also exist across Senegal under a different name. Mostly known as Daaras in Senegal, these "Qur'anic reciting corners" offer informal education to young children around three to four years old in the Quran. Children enrolled in these Daaras are first initiated into the Arabic language and then gradually taught the basics of reading, writing, and reciting the Quran. Given the spiritual dimension associated with teaching the Qur'an to young children, the vast majority of Muslim parents in Senegal never miss the opportunity to enroll their children in these Daaras prior to sending them to French schools. What is interesting about Daaras is that children, under the supervision of a sheik, are highly trained in the nursery rhymes and the alphabet of the Qur'an. An argument could be made that teachers in Daaras act as substitutes for many parents in providing children with the aforementioned home environment filled with print. Most significantly, Daaras become the home environment in which children, through the mediation of self-trained religious leaders, are exposed to early decoding and phonological awareness skills by learning and reciting the Quran.

In addressing this mediation, Bus (2001) found that individual parental responsiveness or teachers' intervention is a crucial element in the process of storybook reading. For example, parents who engage children in stories by asking follow-up questions and supporting their answers are more successful in maintaining children's interest. By contrast, parents who demonstrate a lack of interest in their children's reading stifle their interest in reading in general (Bus, 2001). Although these findings suggest that the home environment greatly facilitates reading from pre-school onwards, parental responsiveness and involvement in children's early development is perhaps the clearest evidence that the home environment affects reading skills. Reading to children alone might not be enough; an interactive dimension is necessary to strongly engage children in the reading process. In that regard, Vygotsky's (1978) experimental intervention study provides solid evidence on the parental role in children's

reading readiness. His Zone of Proximal Development (ZPD), initially designed to show the help that L2 learners can receive from native peers, is now widely used to describe a scaffolding mechanism in which parents intervene in the child's literacy development. In other words, parents can help children achieve their maximum potential by supporting their efforts to learn to read (see Figure 2).

3- Methodology

3.1 Population Sample

Sixty Wolof-speaking elementary schoolchildren learning French as an L2 were recruited from two Senegalese schools, alongside thirty parents who participated in semi-structured interviews. A Likert-scale questionnaire assessed children's exposure to environmental print and interactive literacy practices at home, including engagement with books, participation in word or letter games, and the frequency with which parents or siblings read to them. Parent interviews explored language use within the household, preferred language of instruction, and attitudes toward French.

3.2 Instrument

To gather comprehensive data on children's literacy experiences, we designed a questionnaire assessing their exposure to environmental print and early reading habits at home. The questionnaire, structured on a Likert scale, included four questions addressing two key themes: (1) literacy experiences at home, and (2) literacy experiences with others (e.g., friends, siblings, parents, or teachers). The Likert scale allowed us to measure the frequency of students' reading activities and quantify their responses:

1. How often do you play word or letter games at home?
2. How often do you use books at home?
3. How often do your siblings or friends read to you?
4. How often do your parents read to you?

Additionally, we conducted semi-structured interviews with parents to gain insights into their attitudes toward the French language. The

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interviews focused on three questions:

1. What languages do you use at home?
2. What language do you prefer for your child's education?
3. What is your overall attitude toward the French language?

Thirty parents participated, each interviewed individually with the same structured approach. Findings revealed patterns related to early literacy development at home, highlighting the importance of environmental print and parental involvement in shaping children's reading abilities.

3.3 Procedure

Both themes from the questionnaire were presented in a Likert scale format (NEVER = 1, SELDOM = 2, SOMETIMES = 3, OFTEN = 4, ALWAYS = 5). Each question and its response options were read aloud to children three times in Wolof. Children's verbal responses were limited due to:

1. The structured nature of the Likert scale, requiring predefined responses.
2. The need to complete the questionnaire within ten minutes per participant.

Although presented in written form, the examiners translated the questions into Wolof and conducted the session entirely in that language.

3.4 Results

3-4-1 Themes of Literacy Experiences

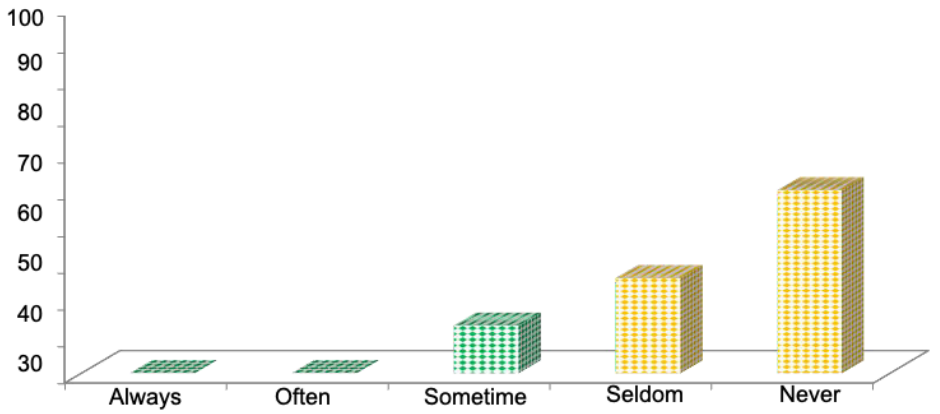
3-4-1-1 Theme One: Students' Literacy Experience of Reading at Home

Children were asked:

1. How often do you play word or letter games at home?

2. How often do you use books at home?

Figure 1: Average Literacy Experience of Reading at Home



Based on responses, 50% (N=30) of students reported never playing word games or using books at home. Additionally, 17% (N=5) seldom engaged in these activities, 13% (N=4) sometimes did, 3% (N=1) often did, and another 3% (N=1) always did. These findings suggest limited early exposure to print at home negatively impacts reading comprehension in French.

3-4-1-2 Theme Two: Students' Literacy Experience of Reading with Others at Home

Children were asked:
3. How often do your siblings or friends read to you?
4. How often do your parents read to you?

Figure 2: Average Literacy Experience with Others

Responses indicated that 67% (N=20) reported that parents, friends, or siblings never read to them. 17% (N=5) seldom, 10% (N=3) sometimes, and 3% (N=1) often. One child reported that others always read to them. These findings highlight the significant impact of lack of

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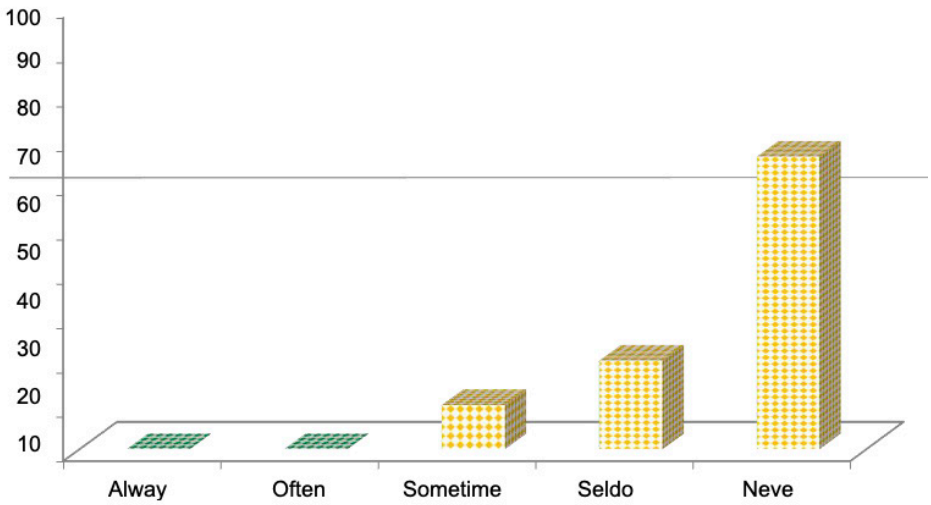
parental involvement on L2 French reading comprehension at school.

Figure 2. Average Literacy Experience with Others



3-4-1-3 Semi-structured Interviews with Parents

3-4-1-3-1 Theme Three: Parents' Attitudes Toward the French Language

Attitudes toward French are influenced by geographical area, religious affiliation, and ethnicity. 90% of parents in Touba expressed very negative attitudes toward French, while 54% in Dakar were somewhat negative. Historical and religious reasons were most frequently cited in Touba.

3-4-1-3-1-1 Languages Used at Home:

- 65% (N=19) used Wolof.
- 21% (N=7) used other national languages (e.g., Jola, Mandinka, Soninké).
- 14% (N=4) mixed French with Wolof.

Parents preferred native languages but were more flexible in Dakar, reflecting a heterogeneous multilingual environment.

3-4-1-3-1-2 Preferred Language for Child's Instruction:

- 57% (N=17) supported Wolof.
- 27% (N=8) preferred French.
- 10% (N=3) wanted Arabic first, then Wolof and French.
- 6% (N=2) abstained.

3-4-1-3-1-3 Overall Attitude Toward French:

- 54% (N=16) somewhat negative.
- 46% (N=14) positive.

Some parents acknowledged the practical benefits of French for professional success:

- "I don't like French, but my children need it for jobs."
- "French opens up opportunities, but local languages are important."

4- Discussion of Results and Conclusions

The results reveal a pattern of limited environmental print exposure in French. Half of the participating children reported never engaging in word games or using books at home, and only a small minority indicated frequent print interaction. Moreover, two-thirds reported that no one reads to them at home. These findings suggest that for many children, formal schooling represents their first sustained encounter with French print. In such circumstances, reading instruction must compensate not only for limited decoding practice but also for minimal familiarity with French orthography and vocabulary.

Parental attitudes further complicate the literacy landscape. While many parents acknowledged the instrumental value of French for employment and social mobility, significant ambivalence—particularly in religiously conservative areas—was evident. The majority of households reported primarily using Wolof or other national languages at home, and support for French as the sole medium of instruction was far from

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unanimous. This sociolinguistic tension reinforces the scarcity of French environmental print in domestic spaces. When a language is perceived as culturally distant, it is less likely to be embedded in everyday literacy practices. Consequently, children must bridge not only linguistic gaps but also symbolic and ideological ones when learning to read in French.

Importantly, children who had received early Qur'anic instruction demonstrated comparatively stronger decoding resilience, suggesting that early literacy training—even in a non-native and structurally distinct language—establishes cognitive foundations that support subsequent L2 reading acquisition. However, decoding proficiency alone did not eliminate comprehension challenges, underscoring that vocabulary breadth and sustained exposure to meaningful print remain indispensable. The findings therefore indicate a layered literacy ecology: decoding skills may transfer across languages, but comprehension development requires language-specific environmental input. In the absence of French print at home, the cognitive burden placed on children during formal schooling increases exponentially.

These results contribute to L2 literacy research in three significant ways. First, they empirically demonstrate that environmental print functions as a catalyst in multilingual contexts, accelerating or constraining L2 reading depending on its presence or absence. Second, they refine theoretical understandings of cross-linguistic transfer by distinguishing between transferable decoding mechanisms and non-transferable lexical knowledge. Third, they highlight the sociocultural dimension of L2 acquisition, showing that parental language ideologies directly influence the material conditions of literacy exposure. Reading difficulty in Senegal, therefore, cannot be attributed solely to pedagogical shortcomings within schools. Rather, it emerges from a structural discontinuity between home literacy environments and institutional language expectations.

If early literacy is cumulative, then disparities in environmental print represent disparities in cognitive preparation. Children who enter French schools without prior exposure to French print must simultaneously acquire decoding fluency, expand vocabulary, and develop comprehension strategies. By contrast, children exposed to print-rich environments—whether in French or another language—begin school with established literacy schemas that facilitate adaptation. Environmental print should thus be conceptualized as educational infrastructure. Just as classrooms require trained teachers and instructional materials, children require early

and sustained engagement with print to build the cognitive scaffolding necessary for L2 reading success.

The implications extend beyond individual households to national policy. Expanding access to low-cost bilingual materials, promoting interactive reading practices, and integrating national languages alongside French in early literacy initiatives may reduce the structural gap between home and school. Most critically, educational reform must recognize that L2 reading outcomes are shaped long before children encounter formal French instruction. Environmental print is not a supplementary enrichment; it is the foundation upon which literacy is constructed. Where it is abundant, L2 reading development is accelerated. Where it is absent, reading difficulties are not incidental but predictable. By repositioning environmental print at the center of L2 literacy theory and practice, this study offers a framework for understanding and addressing persistent reading challenges in Senegal and comparable multilingual contexts. The high literacy in Arabic among Qur'anic children at Gaindé Fatma could perhaps be explained by early resistance to French schools in the city of Touba.

Overall, our findings align with literature emphasizing the importance of home literacy and environmental print in developing decoding skills and reading comprehension (Adams, 1990; McBride-Chang, 2004; Snow et al., 1998). Reading comprehension is a complex cognitive activity requiring phonological awareness and decoding skills. The study highlights the significant role of early literacy experiences in shaping L2 reading comprehension. Qur'anic children, despite not learning to read in Wolof, benefited from intensive exposure to Qur'anic texts in Arabic. This exposure provided decoding skills and a linguistic framework facilitating French reading comprehension. This finding supports Cummins' (1979) Linguistic Interdependence Hypothesis: proficiency in L1 can support L2 development.

Koda's (2005) Interactive-Compensatory Model emphasizes decoding skills as foundational to reading comprehension. The Qur'anic group's Arabic decoding training provided a solid base for approaching French materials, despite structural differences. The sequential linguistic journey of Qur'anic and non-Qur'anic groups underscores literacy's cumulative nature. The Qur'anic group's Arabic exposure to environmental print through the Daaras enriched their linguistic repertoire, enabling better navigation of French reading tasks.

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In summary, early and intensive exposure to reading and recitation, even in a non-native language, lays a foundational framework supporting L2 reading acquisition. These findings reinforce the importance of robust early literacy practices to facilitate bilingual proficiency and academic success. Thus, parents must get involved more in creating the conditions of environmental print at home to boost students 'reading skills very early on, which is a catalyst for L2 French reading at school

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